Annexure IV

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT – Telugu

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. ప్రాచీన సాహిత్య కవులు – రచనలు – కాలం – విశేషాంశాలు

2. ఆధునిక సాహిత్యం – కవులు – రచనలు – వివిధ ధోరణులు, ఉద్యమాలు (భావ, అభ్యుదయ, విప్లవ, దిగంబర, చేతనావర్తన, స్త్రీవాద, మైనారిటీ, దళిత, తెలంగాణోద్యమ బి.సి. వాద, జాతీయోద్యమం)

3. సాహిత్య ప్రక్రియలు – నిర్వచనాలు – లక్షణాలు

   ఎ) పద్య ప్రక్రియలు: ఇతిహాసం, పురాణం, ప్రబంధం, కావ్యం, ఖండకావ్యం, శతకం, గేయం, సంకీర్తనలు, ఆశువు (అవధానం) మొ।।నవి.

   బి) రూపక ప్రక్రియలు: నాటకం/నాటిక, యక్షగానం, బుర్రకథ, సంభాషణ మొ।।నవి

   సి) వచన (గద్య) ప్రక్రియలు: కథ, కథానిక, గల్పిక, నవల, నవలిక, లేఖ, వ్యాసం, జీవితచరిత్ర, ఆత్మకథ (స్వీయచరిత్ర), యాత్రాచరిత్ర, పీఠిక, విమర్శ, ఏకాంకిక, సమీక్ష, వచన కవిత, నిబద్ధ కవిత (నానీలు, గజళ్లు, రుబాయీలు), అనిబద్ధ వచన కవిత, సంపాదకీయం, వార్త, వ్యాఖ్య మొ।।నవి.

4. జానపద విజ్ఞానం – గేయాలు – కథా గేయాలు – గద్యాఖ్యానాలు – పురాణ గాథలు, ఐతిహ్యాలు, కథలు – సామెతలు – పొడుపుకథలు, జానపదకళలు (వీధి నాటకాలు – యక్షగానాలు – తోలుబొమ్మలాటలు – పగటి వేషాలు – చిందు భాగోతాలు – ఒగ్గు కథలు – జాతర కళారూపాలు, బుర్రకథలు)

5. తెలుగు భాషా సాహిత్యాలపై ఇతర భాషల ప్రభావం

6. తెలుగు వ్యాకరణం, ఛందస్సు అధ్యయనం

- బాల, ప్రౌఢ వ్యాకరణాలు
- ఛందస్సు (వృత్యాలు – జాతులు – ఉపజాతులు) – ఉత్పలమాల, చంపకమాల, శార్దూలం, మత్తేభం, ద్విపద, తరువోజ, సీసం, కందర, స్రగ్ధర, పంచచామరం)
- అలంకారాలు – అర్థాలంకారాలు, శబ్దాలంకారాలు
- శబ్ద వృత్తులు – అభిదా, లక్షణ, వ్యంజన

7. తెలుగు భాషా చరిత్ర – పరిణామం

   పాఙ్నిన్నయ యుగం నుండి నేటి వరకు – ద్రావిడ భాషా కుటుంబాలలో తెలుగు స్థానం – భౌగోళిక విభజన – మాండలికాలు, భాషా శాస్త్రం – అర్థవిపరిణామం శాసన భాష నుండి సాహిత్య భాష వరకు – వ్యావహారిక భాషా ఉద్యమం వంటివి.

8. సాహిత్య విమర్శ – విమర్శ రకాలు (నైతిక, మనస్తత్వ, సాంఘిక, కళ, పౌరాణిక), కావ్య నిర్వచనాలు – కావ్య హేతువులు – కావ్యాత్మ, వివిధ సంప్రదాయాలు, రససిద్ధాంతం, ధ్వని సిద్ధాంతం, నాటకం.

9. సంస్కృత వ్యాకరణం – కావ్యాలు

   సంస్కృత వ్యాకరణం ప్రాథమిక విజ్ఞానం, సామాన్య ప్రామాణిక గద్య పద్య పాఠ్యాంశాలు - హితోపదేశం, కాళిదాసుని కృతులు, సంస్కృత పంచకావ్యాల పరిచయం.

10. భాషా రూపాలు – శాసన భాష, గ్రాంథిక భాష, వ్యావహారిక భాష, మాండలిక భాష, ప్రసార మాధ్యమాల భాష మొ।।నవి – తెలుగు భాషా ప్రాధాన్యత – ప్రాచీనత, పరిరక్షణ, అభివృద్ధి చర్యలు – అభివృద్ధి సంస్థలు

11. భాషాంశాలు – భాషోచ్చారణ – ధ్వని – ధ్వని ఉత్పత్తి స్థానాలు – అక్షరం – లిపి – లిపి పరిణామం – పదం – ప్రాతిపదిక – ప్రత్యయం – అర్థం - అర్థ విపరిణామం - తత్సమం – తద్ధవం – దేశ్యం – గ్రామ్యం - అన్యదేశ్యం - నానార్థాలు – పర్యాయపదాలు – నానార్థాలు – ప్రకృతి వికృతులు – వ్యుత్పత్యర్థాలు, సంధులు, సమాసాలు, ఛందస్సు, అలంకారాలు, వ్యాకరణ పరిభాష, వాక్యం – వాక్య భేదాలు

12. పఠనావగాహన ((అ) పద్యం, (ఆ) గద్యం)

Part V Pedagogy

1. భాష – ఆవశ్యకత, స్వభావం, నిర్వచనాలు, ప్రయోజనాలు భాషోత్పత్తి వాదాలు – ధ్వన్యుత్పత్తి స్థానాలు
2. భాషా నైపుణ్యాలు – లక్షణాలు, అభివృద్ధి చర్యలు – పద్ధతులు వీని మధ్య గల పరస్పర సంబంధం
3. తెలుగు భాషా బోధనోద్దేశాలు – సాధించవలసిన సామర్థ్యాలు

- ఉద్దేశ్యాలు, లక్ష్యాలు
- వివిధ స్థాయిలలో సాధించవలసిన అభ్యసన సామర్థ్యాలు, ప్రమాణాలు, అభ్యసన ఫలితాలు
- సామర్థ్యాల వారీగా బోధన వ్యూహాలు

4. విద్యా ప్రణాళిక, విషయ ప్రణాళిక, తెలుగు వాచకాలు
5. వివిధ ప్రక్రియల బోధన – పద్ధతులు
   - భాషా బోధన – ఆధునిక బోధన పద్ధతులు/వ్యూహాలు
6. భాషోపాధ్యాయుల తరగతి సన్నద్ధత – ప్రణాళికలు
   - వార్షిక ప్రణాళిక, పాఠ్యప్రణాళిక (యూనిట్ ప్లాన్), కాలాంశ (పీరియడు) ప్రణాళిక
   - భాషాభివృద్ధి కార్యక్రమాలు
   - భాషాబోధన – వనరులు – పాఠశాల గ్రంథాలయం
   - బోధనాభ్యసన సామగ్రి (TLM)
7. భాషోపాధ్యాయుడు – వృత్తిపరమైన అభివృద్ధి
   - భాషోపాధ్యాయుని సాధారణ, విశిష్ట లక్షణాలు
   - బోధన నైపుణ్యాలు – సూక్ష్మబోధన
8. అభ్యసన వైకల్యాలు – ప్రత్యేక అవసరాలు గల పిల్లల భాషాభ్యసనం
9. నిత్య జీవితంలో భాషా వినియోగం – భాషా సమస్యలు, భాషా విధానాలు; జాతీయ, రాష్ట్ర స్థాయి విద్యా ప్రణాళికా చట్రాలు, R.T.E. చట్టం – 2009
10. మూల్యాంకనం – పరీక్షలు
    - నిరంతర సమగ్ర మూల్యాంకనం (C.C.E)
    - ఉత్తమ ప్రశ్న పత్రము తయారీ
    - ప్రశ్న పత్ర భారత్వ పట్టికలు
    - గ్రేడింగ్ విధానము
    - సవరణ బోధన

Annexure – V

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7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

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1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

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5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part – III Content (Language & Literature)

1. Language:

i) Grammar

a) Parts of Speech; b) Subject and Verb Agreement; c) Types of sentences –Transformations; d) Conjunctions; e) Verbs & Tense and Time; f) Prepositions; g) Adverbs; h) Adjectives including Degrees of Comparison; i) Articles & Determiners; j) Interjections; k) Voice; l) Direct

and Indirect Speech; m) Clauses & Phrases including Simple, Compound and Complex sentences; n) Non-finite Verbs; o) Framing Questions and Question Tags; and p) Correction of Sentences.

ii) Vocabulary

a) Synonyms and Antonyms; b) Phrasal Verbs & Idioms; c) Figures of Speech; d) Homophones; e) Homonyms; f) homographs; g) Affixation; and h) Spelling

iii) Words and Sentences in Use:

a) Choosing Appropriate words; b) Words-often Confused; c) Sentence Arrangement, d) Completion, Fillers and Improvement; e) Comprehension; f) Punctuation; g) Spotting of Errors; and English Composition (Paragraph, essay, expansion, précis, Letter writing, message, notice, article and report writing)

iv) Aspects of Pronunciation:

a) Vowel and consonant Sounds and phonemes; b) Stress: word and sentence stress; and c) Intonation: Four basic patterns of intonation.

2. LITERATURE:

i) Comprehension of
   a) Literary prose passage and
   b) A poem

ii) Study of Literary forms:
   a) Poetry: Sonnet, ode, elegy, Ballad, Lyric, Dramatic Monologue
   b) Prose:
      - Drama (Structure, Characters, dialogues, Soliloquy, tragedy, comedy, Tragicomedy)
      - Fiction: (point of view, setting atmosphere; style; Technique of Narration.)
      - Essay Detailed study of English Literature from 1798 to 1900 with special reference to Wordsworth, S.T. Coleridge, John Keats, Shelly, Lord Byron, Charles Lamb, Charles Dickens, William Hazlitt, Alfred Lord Tennyson, Robert Browning, Mathew Arnold, George Eliot, Thomas Carlyle and John Ruskin.

iii. Poetry

Name of the Poet	**Title**
Sarojini Naidu	In The Bazaars of Hyderabad
R.W. Emerson	A Nation's Strength
R.L. Stevenson	My Shadow
Alfred Tennyson	Home They Brought Her Warrior Dead

Elizabeth Barrett Browning	The Cry of Children
Rabindranath Tagore	My Mother; Freedom.
C.A. Bowels	The River
Gabriel Okara	Once Upon A Time
Medora Chevalier	Or Will The Dreamer Awake?
Dr. Suraya Nasim	Abandoned
Khalil Gibran	On Friendship
Shiv K. Kumar	Mother's Day
William Wordsworth	Anecdote For Fathers
Edward Lear	The Duck And The Kangaroo
Harry Behn	Trees
Lily Usher	Grabbing Everything On The Land
Harindranath Chatopadyaya	The Earthen Goblet
Don Marquis	A Spider And AFly

iv. Prose

Name of the Essayist/Writer/Novelist	**Title**
A.P.J. Kalam	Wings Of Fire
R.K. Narayan	Swami And Friends
Charles Dickens	Oliver Twist
Jonathan Swift	Gulliver Travels
Sudha Murthy	1. Gender Bias 2. How I Taught My Grandmother To Read and Other stories
Isaac Asimov	Robots And People
O. Henry	After Twenty Years
R.K. Laxman	The Gold Frame
E.V. Lucas	The Face On The Wall
Oscar Wilde	The Nightingale And The Rose
Satyajit Ray	Bepin Choudhury's Lapse of Memory
A.G. Gardiner	On Umbrella Morals
Stephen Leacock	HowToLiveToBe200
George Orwell	Animal Farm

Drama/Play

Name of the Writer	**Title**
J.B. Priestley	Mother's Day
William Stanley Houghton	The Dear Departed

Cedric Mount	The Never Never Nest
Fritz Karinthy	The Refund
G.B. Shaw	Saint Joan
Shakespeare	Julius Caesar

The Candidates are expected to have a thorough knowledge of the above mentioned poets, essayists, novelists and dramatists and their respective works mentioned at the level that is expected of a student of literature.

Part IV – Pedagogy

1. The Nature of language and its Historical Development; First Language; Second Language and Third Language; Different Types of Languages; Mother Tongue; Languages of Different Professions; Importance of languages across School Curriculum; Contributions of Creative Writers.
2. Values, Aims and Objectives of Teaching Languages
3. Child Development; Psychology of Teaching and Learning Languages; Language, Thinking and Creativity.
4. Language Curriculum: Construction, Organization and Development.
5. Language Skills; Planning for Effective Instruction in Language Classrooms: Different Plans and Designing Learning Experiences.
6. Approaches, Methods and Techniques of Teaching Languages with special reference to School Content (Prose/Fiction /Poetry/Drama/Essay).
7. Teaching and Learning Resources and Designing Instructional Material for Languages; Language Labs; Teaching Aids; Textbooks; ICT in Language Teaching and Learning.
8. Measurement and Evaluation in Languages: Continuous and Comprehensive Evaluation (CCE); Tools and Techniques of Evaluation; Achievement and Diagnostic Tests.
9. Learning Disabilities/Difficulties and Education of Exceptional/ Disabled Children in Languages.
10. Language and Everyday Life; Language Issues and Policies. National and State Curriculum frameworks.

Annexure VI

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Mathematics

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths &

Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. **Number System:** Natural Numbers, Whole Numbers, Integers, Rational Numbers, Real Numbers: Fundamental operations and their properties; HCF and LCM; Fractions and Decimals; divisibility tests; Squares, Square roots, Cubes, Cube roots; Pythagorean triplets; Surds; Euclid division lemma; Fundamental Theorem of Arithmetic; Introduction of logarithms; Conversion of a number in exponential form to a logarithmic form; Properties and laws of logarithms; Sets and their representations; Types of sets; cardinality of sets; Venn diagrams; Sets - subsets - Disjoint sets; operations and properties on sets: Complement of a set; Complex Numbers - Complex number as an ordered pair of real numbers- fundamental operations - Representation of complex numbers in the form a+ib - Modulus and amplitude of complex numbers – Geometrical and Polar Representation of complex numbers in Argand plane - Argand diagram; De Moivre's Theorem - Integral and Rational indice - n^{th} roots of unity- Geometrical Interpretations – Illustrations;

2. **Arithmetic:** Ratio and Proportion - Direct and indirect proportion; Compound ratio; Percentage ; Profit and Loss – Discount – Simple interest – Compound interest; Time & work; Time & Distance.

3. **Algebra**: Exponents and powers-Laws; Algebraic Expressions - fundamental operations - Identities - Factorization; Polynomials - Zero / roots of a polynomial / equation - Division of polynomials - Remainder Theorem - Factor Theorem; Partial fractions - Partial fractions of f(x)/g(x) when g(x) contains repeated and/or non-repeated linear

factors - Partial fractions of f(x)/g(x) when g(x) contains irreducible factors; Linear Equations in one & Two Variables ; Pair of Linear Equations in Two Variables – Solutions;

Quadratic Equations – Finding the roots - Relationship between discriminant and nature of roots; Quadratic Expressions - Quadratic expressions, equations in one variable - Sign of quadratic expressions – Change in signs – Maximum and minimum values - Quadratic inequations; Theory of Equations - The relation between the roots and the coefficients in an equation - Solving the equations when two or more of its roots are connected by certain relations- Equation with real coefficients - occurrence of complex roots in conjugate pairs and its consequences - Transformation of equations - Reciprocal Equations; Binomial Theorem - Binomial theorem for positive integral index , rational Index - Approximations using Binomial theorem; Progressions – Arithmetic Progression – Mean - n^{th} term and sum of first "n" terms – Geometric Progression – Mean - n^{th} term - sum of first "n" terms – Sum of infinity terms.

Functions – Ordered pairs-Types of functions-Inverse Functions- Theorems –Real valued Functions; Mathematical induction –principles of mathematical induction & theorems – applications of Mathematical Induction - problems on divisibility; Matrices-Operations on matrices - Types of matrices – transpose of a matrix – determinants-inverse of a matrix –consistency and inconsistency of system of simultaneous equations – rank of a matrix-solution of simultaneous linear equations

4. **Addition of vectors: -** Introduction - Vectors as a triad of real numbers, some basic concepts- Types of vectors-Sum of vectors-Scalar Multiplication of a vector-Angle between two non-zero vectors-Linear Combination of Vectors-Components of a vector in Three Dimensions-Vector Equations of Line and Plane; Product of Vectors - Introduction- Scalar or dot product of two vectors – Geometrical interpretation - Orthogonal Projections- Properties of dot product-Expression for scalar (dot) product, Angle between two vectors-Geometrical Vector methods-Vector equation of a plane - normal form-Angle between two planes-Vector product (cross product) of two vectors and properties-Vector product in (i, j, k) system-Vector Areas- Scalar triple product-Vector equation of a plane - different forms, skew lines, shortest distance - plane, condition for coplanarity etc- Vector triple product – results

5. **Trigonometry:** Trigonometry -Basic concepts; Trigonometric ratios- Trigonometric ratios of compound angles, multiple and sub- multiple angles -Complementary angles; Trigonometric Identities; Conversions of Trigonometric ratios – Trigonometric transformations - Heights and distances; Trigonometric equations –solutions; Inverse trigonometric functions - graphs and their properties; Hyperbolic functions- Definitions-graphs-Inverse Hyperbolic functions and graphs- Addition formulas of hyperbolic functions; Properties of triangles – relation between sides and angles of a triangles –sine,

cosine and tangent rules-projection rules-half angle formulae and area of a triangle-incircle and excircles of a triangle

6. **Geometry:** Basic geometrical concepts; 3D, 2D shapes – Nets – drawing - representing; Types of Quadrilaterals and their properties – constructions – related theorems; Circle and its components – related theorems; Lines and Angles - Perpendicular bisector and angular bisector - Pairs of angles - Properties of parallel lines with transversal - related Theorems; Symmetry - lines of symmetry - rotational and reflective symmetry - Point of symmetry – Dilations - Tessellations; Triangles – types – properties - Median and Altitude of a triangle, Centriod – Criteria of congruence – Criteria of similar triangles - constructions - related theorems; Euclid's Geometry – axioms – postulates; Tangents and secants to a circle – related theorems.

7. **Coordinate geometry:** Cartesian system-graphs of linear equations- Distance between two points- Collinearity of points- Section formula- Area of a triangle on coordinate plane; Concept of locus-problems connected to it; Transformation and rotation of Axes; Straight line – different forms of straight line and conversions-Intersection of two straight lines- concurrent lines and condition for concurrent lines-properties related to a triangle-Angle between two lines-Length of perpendicular from a point to a line-Distance between two parallel lines; Pair of straight Lines- Introduction- Equations of a pair of lines passing through the origin, Angle between a pair of lines-condition for perpendicular and coincident lines, bisectors of angles- Pair of bisectors of angles- Pair of lines - Second degree general equation- Conditions for parallel lines - Distance between them, Point of intersection of pair of lines- Homogenising a second degree equation with a first degree equation in x and y; - 3-D Geometry;DR's and DC's ; Cartesian equation of a plane.

   Circle Equation – standard form, center and radius-Position of a point in plane of circle-Position of a straight line in plane of circle-condition for a line to be a tangent-chord of contact and polar- Relative positions of two circles; System of circles- angles between two intersecting circles- radcal axis of two circles ; Conic Section-Parabola-Ellipse- Hyperbola-Standard forms- equation of tangent and normal at a point on the Parabola/Ellipse/Hyperbola

8. **Mensuration -** Area and Perimeter -Quadrilaterals –Triangle; Area of rectangular paths; Area of the circle - circular paths (Ring) and area of sector, Circumference of Circle; TSA & CSA of cube, cuboid, right circular cylinder, cone, sphere, hemi sphere; Volume of cube, cuboid, right circular cylinder, cone, sphere, hemi sphere; Volume and capacity; Relationship between surface areas of any two comparable solids; Relationship between volumes of any two comparable solids; surface areas and volumes of combinations of any of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders / cones; Problems involving converting one type of metallic solid into another and other

mixed problems(Problems with combination of not more than two different solids be taken).

9. **Statistics and Probability –** Data handling-Data- Collection and organisation of data; Pictograph and Bar graphs: Simple pie charts; Measures of central tendency-Mean, Median and Mode of ungrouped and grouped data-Specific usages; Frequency distribution for ungrouped and grouped data- Preparation of frequency distribution table; Frequency graphs (histogram for equal and unequal class intervals, frequency polygon, frequency curve, cumulative frequency curves) and related problems; Usage of different values and central tendencies through Ogives; Measures of dispersion - Range - Mean deviation - Variance and standard deviation of ungrouped/grouped data - Coefficient of variation and analysis of frequency distribution with equal means but different variances;

   Probability- Basic Concepts and definition of Probability - Random experiments and events - Outcomes and chances -Events-Mutually exclusive, possible and impossible, Complementary - Applications of Probability- - Classical definition of probability, Axiomatic approach and addition theorem of probability - Independent and dependent events Conditional probability- multiplication theorem and Bayee's theorem; Random Variables and Probability Distributions- Random Variables - Theoretical discrete distributions – Binomial and Poisson Distributions Permutations and Combinations - Fundamental Principle of counting – linear and circular permutations - Permutations of 'n' dissimilar things taken 'r' at a time - Permutations when repetitions allowed - Circular permutations - Permutations with constraint repetitions - Combinations-definitions and certain theorems;

10. **Calculus:** Limits and Continuity- Intervals and neighbourhoods- Limits- Standard limits-Continuity**;** Differentiation – Derivative of a function- Elementary properties-Derivatives of Trigonometric, Inverse Trigonometric, Hyperbolic, Inverse Hyperbolic Functions- Methods of differentiation- Second Order Derivatives; Applications of Derivatives -Errors and approximations- Geometrical interpretation of the derivative-Equations of tangent and normal to a curve- Lengths of tangent, normal, subtangent and subnormal- Angle between two curves and condition for orthogonality of curves-Derivative as a rate of change- Rolle's Theorem and Lagrange's Mean Value Theorem-Increasing and Decreasing functions- Maxima and Minima. Integration – Standard forms – properties of integrals – Integration by the method of substitution - integration of algebraic and trigonometric functions- Integration by parts - integration of exponential, logarithmic and inverse trigonometric functions- Partial fractions method-reduction formulae; Definite Integrals - Definite Integral as the limit of sum- Interpretation of definite integral as an area - The Fundamental Theorem of Integral Calculus- Properties-Reduction Formulae- Applications of definite integral to areas; Differential Equations-Formation of differential equations - Degree and order of an ordinary differential

equation- Solving Differential Equations- Variables separable method- Homogeneous Differential Equation- Non - Homogeneous Differential Equations-) Linear Differential Equations

Part V- Pedagogy:

1. Nature and Scope of Mathematics:

i. Mathematics: Meaning and Definition

ii. Nature of Mathematics: Utility, Originality, Abstractness, Truthfulness, logical Conclusions, Nature of Verification, Aesthetics, Co- existence of Provision, Inclusive and Deductive Reasoning, and correlation, Identifying Mathematical Patterns

iii. Scope of Mathematics

a. Use of Mathematics in daily life.

b. Correlation with other subjects/ disciplines

2. History of Mathematics and Contributions of Mathematicians: Pythagoras, Euclid, Baudhayana, Aryabhatta, Brahmagupta, Bhaskaracharya-ll, Srinivasa Ramanujan, P.C.Mahalanobis, Hypatia.

3. Aims and Objectives of Learning Mathematics

(i) Aims and Values

a. Aims of Learning Mathematics

b. Knowledge and Understanding through Mathematics

c. Relating Mathematics Education to Natural and Social Environment, Technology and Society, Gender & Mathematics, Mathematics for Inclusion.

d. Imbibing the Values through Mathematics Teaching

(ii) Objectives

a. Meaning of Learning Objectives

b. Developing Learning Objectives, Features of Learning Objectives - Blooms Taxonomy

c. Anderson and Krathwohl's Taxonomy.

d. Learning Objectives: Remembering, Understanding, Applying, Analyzing, Evaluating and Creating

e. Illustrations on Learning Objectives for Upper Primary, Secondary and Higher Secondary Stages

f. Learning Objectives in the Constructivist Perspective

g. Academic Standards in Mathematics 8. Learning

h. Learning outcomes

i. Professional growth of teacher

4. How children learn mathematics: Psychological implications of learning mathematics - Jean Piaget, Jerome Bruner, Lev Vygotsky

5. Pedagogical Shift in Mathematics

i. Pedagogical Shift:

   a. Mathematics as Fixed Body of Knowledge to the Process of Constructing Knowledge

   b. Nature of Mathematics

   c. Approaches

   d. Assessment

   e. Learner, Learning and Teacher

   f. Planning Teaching-Learning Experiences-Planning Teaching-Learning: Before shift and After shift

   g. Mathematics Curriculum, Diversity in Classroom, Information and Communication Technology (ICT)

ii. Democratizing Mathematics Learning: Critical Pedagogy and Role of Teachers

iii. Content-Cum-Methodology (CCM): Meaning, Concept & Nature, Steps to Content-cum-Methodology, Steps to Pedagogical Analysis, Content and Teaching Skills

6. School Curriculum in Mathematics

i. Curriculum Framework, Curriculum and Syllabus from Subject-Centred to Behaviourist to Constructivist Approach.

ii. Mathematics Curriculum Development and Organisation - Principles and Approaches

iii. Recommendations of NCF-2005 and APSCF-2011 on Mathematics Curriculum

iv. National Focus Group Position Paper on Mathematics and State Position Paper (2011) on Mathematics

v. Moving from Textbook to Teaching-Learning Materials, Going beyond the Textbook

vi. Print Resources- Textbooks, Popular Mathematics Book, Journals and Magazines

vii. Dale's Cone of Experience- Using the Cone of Experience

viii. Teacher as Curriculum Developer- Localized Curriculum, Place for Artisans.

ix. Knowledge Systems in Curriculum, Local Innovators and Innovative practices in Mathematics.

7. Approaches, Strategies and Methods of Teaching and Learning Mathematics

i. Approaches and Strategies for Learning Mathematics-Difference between Approach and Strategy, Different Approaches and Strategies of Learning, Selecting appropriate Approach and Strategy, Essential Components of all approaches and strategies.

ii. Constructivist Approach of Teaching Mathematics and Strategies

iii. 5 E Learning Model

iv. Collaborative Learning Approach (CLA)- Ensuring Meaningful Learning, through CLA - Ways of Applying - Steps & Limitations

v. Problem Solving Approach (PSA)- Steps & Teacher's role

vi. Concept Mapping- Phases of the Concept Mapping and its uses

vii. Experiential Learning- Abilities of an Experiential Learner.

viii. Methods of Teaching mathematics: Activity based, Inductive – Deductive, Analytic-synthetic, Project, Heuristic, project, Laboratory methods

8. Learning Resources

i. Learning Resources from Immediate Environment

ii. Pooling of Learning Resources from various sources

iii. Mathematics Kits

iv. Mathematics club

v. Mathematics Lab

9. Planning for Teaching-Learning of Mathematics

i. Need of Planning for Teaching-Learning.

ii. Planning Annual Plan, Unit Plan, Lesson Plan /Period plan.

iii. Identification and Organisation of Concepts for Teaching - Learning of Mathematics

iv. Elements of a Mathematics Lesson- Learning Objectives and Key Concepts, Pre-existing Knowledge, Teaching-Learning Materials; Introduction, Presentation / Development & Assessment.

Assessment: Acceptable evidences that show learners understand

(a) Determining Learning Evidences

(b) Planning of the acceptable Evidences of Learning for Assessment; Extended Learning/Assignment

v. Planning and Organizing Activities in Mathematics, Laboratory Work and Organizing Laboratory Work and ICT Applications in Teaching Learning of Mathematics.

10. Tools and Techniques of Assessment for Learning Mathematics

i. Test, Examination, Measurement, Assessment and Evaluation

ii. Continuous and Comprehensive Evaluation (CCE)- Educational Assessment and Educational Evaluation, Performance-based Assessment: A flexible way of School Based Assessment

iii. Formative and Summative Assessment -

iv. Assessment Framework,

(a) Purpose of Assessment,

(b) Learning Indicators (LI) - Types of Indicators –

- Assessment of Activity
- Assessment of Presentation
- Assessment of Group Work
- Assessment of Collaborative Learning

(c) Tools and Techniques of Assessment - Written test Project Work - Field Trips and Field Diary - Laboratory Work - Interview/Oral Test - Journal Writing - Concept Mapping - Weightage Tables and Blueprint

(d) Recording and Reporting, - Measurement of Students' Achievements, Grading System - Measurement of Process Skills Measurement of Attitudes - Portfolio: Its role in evaluating students' performance.

Annexure VII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT – Economics

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part III - Content

1. Micro Economics

i. Demand Analysis

Definitions, Nature and Scope of Economics Micro and Macro Economic Analyses Concepts of Demand and Law of Demand – Determinants and Types of Demand - Demand Function - Concepts of Supply and Law of Supply -Market Equilibrium - Elasticity - of Demand Concept and Types - Measurement Methods of Price Elasticity of Demand.

ii. Utility Analysis

Cardinal and Ordinal Utility Approaches Law of Diminishing Marginal Utility - Law of Equi- Marginal Utility - Consumer Surplus - Indifference Curve Analysis Consumer's Equilibrium - Derivation of Demand Curve with the help of Indifference Curves - Price, Income and Substitution Effects - Revealed Preference Theory.

iii. Production Analysis

Production, Production Function and Factors of Production - Law of Variable Proportions - Isoquant, Isocost Curves and Producer's Equilibrium - Laws of Returns to Scale - Economies of Scale - Cost Analysis Cost Curves in Short Run and Long Run - Revenue - Analysis Relationship among Average Revenue, Marginal Revenue and Elasticity of Supply.

iv. Market Structure Analysis

Concepts of Firm, Industry and Market - Classification of Markets - Objectives of the Firm - Equilibrium of a Firm - Shut-Down Point - Perfect Competition: Concept, Characteristics Equilibrium of Firm and Industry – Optimum Firm – Monopoly, Concept, Types, Characteristics and Equilibrium of the Firm - Price Discrimination - Monopolistic Competition: Concept, Characteristics and Equilibrium of the Firm.

v. Oligopoly, Duopoly and Factor Pricing Analysis

Oligopoly: Concept, Characteristics and Price Rigidity Kinky Demand Curve -Duopoly Concept and Characteristics - Cournot Model - Marginal Productivity Theory of Distribution - Distribution Theories of Rent, Wages, Profit and interest.

2. Macro Economics

i. National Income Analysis

Concept Nature & Scope and Importance of Macro Economics - Concept of Circular Flow of Incomes - National Income Analysis: Concepts and Components Methods of Measurement of National Income - Importance of and Difficulties in the Estimation of National Income - Limitations of National Income as a Measure of Welfare.

ii. Theories of Income and Employment

Classical Theory of Employment Say's Law of Markets and Pigou's Wage Cut Policy - Keynesian Theory of Income and Employment Effective Demand, Aggregate Demand Function and Aggregate Supply Function - Consumption Function Factors Determining Consumption Function Savings Function - Concepts of Multiplier, Accelerator and Super- Multiplier.

iii. Theories of Investment and Interest Rate

Capital and Investment - Types and Determinants of Investment - Marginal Efficiency of Capital Classical, Neo-Classical and Keynesian Theories of Interest - Simultaneous Determination of Interest and Real Income through IS-LM Framework.

iv. Supply of Money and Demand for Money

Meaning Functions and Classification of Money - Meaning and Measures of Money Supply - Demand for Money - Classical Theories of Money: Fisher's and Cambridge Versions of Quantity Theory of Money - Keynesian and Milton Friedman Approaches to Demand for Money.

v. Inflation and Trade Cycles

Inflation: Concept, Types, Causes and Measurements - Effects of Inflation - Measures to Control Inflation - Phillips Curve, Deflation and Stagflation - Trade Cycles: Concept, Nature and Causes - Phases and Remedial Measures of Trade Cycles.

3. Public Finance

i. Introduction to Public Finance

Role of State in Economic Activities, Planning and Development - Nature, Scope and Evolution of Public Finance - Public, Private and Merit Goods - Multiple Theory of Public Household - Principle of Maximum Social Advantage.

ii. Public Revenue and Taxation

Public Revenue: Sources and Classification - Direct and Indirect Taxes Progressive, Proportional and Regressive Taxes - Canons of Taxation Characteristics of a Good Tax System - Impact and Incidence of Taxation Effects of Taxation - Goods and Service Tax (GST).

iii. Public Expenditure and Public Debt

Public Expenditure: Classification and Principles - Determinants of Public Expenditure - Theories of Public Expenditure: Wagner and Peacock-Wiseman -Effects of Public Expenditure - Public Debt: Nature, Sources and Classification -Effects and Redemption of Public Debt - Debt Trap.

iv. Fiscal Policy and Federal Finance

Fiscal Policy: Concept, Objectives and Tools - Fiscal Policy and Monetary Policy - Federal Finance: Concept and Features Centre - State Financial Relations -Transfer of Resources from Centre to State and Local Bodies - Functions of Finance Commission Current Finance Commission's Recommendations.

v. Budget

Budget Concepts, Classification and Types Revenue Account and Capital Account - Budget Deficits: Concepts, Types and Implications Fiscal Responsibility and Budget Management (FRBM) - Budgeting in India Central Budget & State Budget.

4. International Economics

i. Theories of International Trade

International Trade, Inter-Regional Trade and Inter-Industry Trade - Gains from Trade - Trade as an Engine of Economic Growth Role of International Trade in Economic Development - Classical and Neo-Classical Theories of International Trade - Heckscher- Ohlin Theory of International Trade.

ii. Terms of Trade and Barriers to Trade

Concepts of Terms of Trade - Factors Affecting Terms of Trade - Uses and Limitations of Terms of Trade - Secular Deterioration Hypothesis of Terms of Trade: Singer and Prebish - Tariffs, Quotas and Subsidies: Their Effects -Impact of Tariffs on Partial and General Equilibrium Analyses Political Economy of Non-Tariff Barners and Their Implications.

iii. Balance of Payments

Concepts of Balance of Trade and Balance of Payments Factors Affecting Balance of Trade Differences Between Balance of Trade and Balance of Payments - Components of Balance of Payments -Equilibrium and Disequilibrium in Balance of Payments - Types of Disequilibrium Causes and Consequences of Disequilibrium in Balance of Payments - Remedial Measures for Correcting Disequilibrium in Balance of Payments - Recent Trends in India's Balance of Payments.

iv. Exchange Rates

Foreign Exchange Market Exchange Rates: Concept and Types - Relative Merits and Dements of Fixed and Flexible Exchange Rates - Theories of Exchange Rates - Determination: Mini Parity and Purchasing Power Parity (PPP) - An Overview of Different Methods of Exchange Rate Determination in India.

v. International Monetary System and International Finance

Lending Operations of International Financial Institutions IMF, World Bank (IBRD), IDA, IFC, ADB and BRICS - Euro-Dollar and Euro-Currency Markets -International Trade Institutions: GATT and WTO - Impact of WTO on Indian Economy.

5. Economics of Development and Growth

i. Socio-Economic and Institutional Aspects of Economic Development

Concepts of Economic Growth, Development and Underdevelopment - Distinction Between Growth and Development Objectives of Economic Development Sustainable Development and Inclusive Growth Indicators of Economic Development.

ii. Factors of Economic Development

Factors Hindering Economic Development Factors Promoting Economic Development - Population and Economic Development - Population Explosion -Theories of Demographic Transition - Malthusian Population Theory - Optimum Theory of Population - Natural Resources and Economic Development.

iii. Theories of Growth and Development

Classical Theories of Economic Growth, Adam Smith, Ricardo and J. S. Mill - Karl Marx Theory of Economic Development; Schumpeter's Theory of Economic Development Rosiow's Theory of Economic Growth.

iv. Strategies of Economic Development and Growth

Big Push Theory - Balanced Growth Strategies of Rodan, Nurkse and Lewis - Unbalanced Growth Strategy of Hirschman - Critical Minimum Effort Thesis - Low Level Equilibrium Trap - Theories of Social and Technological Dualism.

v. Growth Models Harrod - Domar Growth Model - Kaldor's Growth Model - Joan Robinson's Growth Model - Gunnar Myrdal's Model - Choice of Techniques: AK Sen - Technical Progress: Hicks and Harrod.

6. Indian Economy

i. Basic Structure and Demographic Features of Indian Economy

Basic Features of Indian Economy Growth, Trends and Structural Changes in Indian Economy Demographic Features of Indian Population - Size, Growth and Composition of Population and Their implications on Indian Economy - Sectoral and Occupational Distribution of Population in India - Population Policy of India - Human Resource Development Education and Health - Human Development Index - views of Amartya Sen Human Resource Development.

ii. National Income, Income Inequalities Poverty and Unemployment

Estimation of National Income in India Trends and Composition of National Income in India Income Inequalities in India: Magnitude. Causes, Consequences and Remedial Measures - Poverty in India Concept, Types, Trends, Causes and Consequences - Unemployment in India: Concept, Types, Trends, Causes and Consequences - Poverty Alleviation and Employment Generation Programmes in India.

iii. Planning and Public Policy

Concept, Types and importance of Planning - Major Objectives of Five Year Plans in India - Review of Five Year Plans: Achievements and Failures - Current Five Year Plan - NITI Aayog - Economic Reforms, Liberalisation, Privatisation and Globalisation - A Critical Evaluation of Economic Reforms - Regional Imbalances – Rural - Urban Disparities Migration.

iv. Agricultural Sector

Nature and Importance of Agriculture in Indian Economic Development - Trends in Agricultural Production and Productivity Agricultural System in India and Land Reforms - Green Revolution - Cropping Pattern - Agricultural Finance and Rural Indebtedness - Agricultural Marketing – Agricultural - Pricing Food Security in India.

v. Industrial and Service Sectors

Structure, Growth, Trends and Importance of Indian Industry - Problems of Indian Industry Medium, Small Scale and Micro Enterprises (MSME): Growth, Role and Problems (Including Sickness Problem) Industrial Policies of 1948 and 1991 - FEMA and Competition Commission of India - Disinvestment Policy - Foreign Direct

Investment - Concept and Components of Service Sector - Infrastructural Development: Transport, Telecom, Space Research, Energy, Communication and Information Technology, Make in India.

7. Telangana Economy

i. Telangana Economy: Human Resources

Economic History of Telangana - Economic Features of Telangana - Demographic Features of Telangana - Occupational Distribution of Population in Telangana - Sectoral Distribution of Population - Human Resource Development: Education and Health.

ii. Gross State Domestic Product, Poverty and Unemployment

Growth and Trends in Gross State Domestic Product and Per Capita Income in Telangana: District wise Analysis - Sectoral Contribution to Gross State Domestic Product - Inequalities in the Distribution of Income and Wealth - Poverty in Telangana: Trends, Causes and Consequences - Unemployment in Telangana: Trends, Causes and Consequences - Poverty Alleviation and Employment Generation Programmes in Telangana - Other Welfare Programmes in Telangana State.

iii. Agricultural Sector

Growth of Agriculture in Telangana Economy - Trends in Agricultural Production and Productivity - Determinants of Agricultural Productivity - Cropping Pattern -Agrarian Structure and Land Reforms - Irrigation: Sources and Trends - Mission Kakatiya - Agricultural Credit and Rural Indebtedness - Agricultural Marketing.

iv. Industrial Sector

Structure of Telangana Industry - Growth and Pattern of Industrial Development in Telangana - Industrial Policy of Telangana State - Special Economic Zones (SEZ) - Role of Small Scale industries in Telangana Economy - Problems & Remedial Measures of Small Scale Industries: Issue of Sickness - Industrial Finance in Telangana.

v. Service and Infrastructural Sectors

Growth and Trends in Tertiary Sector in Telangana - Growth and Pattern of Development of Service Sector in Telangana - Infrastructural Development in Telangana: Transport, Energy, Communications, Information Technology and Tourism.

8. Quantitative Methods for Economic Analysis

i. Mathematical Foundations of Economic Analysis

Need and importance of Quantitative Methods in Economics - Meaning and Basic Concepts of Mathematics: Constants and Variables - Functions: Linear, Non-Linear

Functions Equations and Graphs of Linear, Quadratic and Cubic Functions - Concept of Derivative - Rules of Differentiation with respect to Cost, Revenue, Price and Demand Functions -Application of Maxima and Minima in Economic Analysis.

ii. Introduction to Statistics

Meaning, Basic Concepts and Uses of Statistics - Population and Sample - Frequency Distribution, Cumulative Frequency - Graphic and Diagrammatic Representation of Data - Types of Data: Primary and Secondary Data - Methods of Data Collection: Census and Sampling Methods (Random and Non-Random Sampling Methods)

iii. Measures of Central Tendency and Dispersion

Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean - Properties of Good Average - Comparison of Different Averages - Measures of Dispersion - Absolute and Relative Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation and Variance.

iv. Correlation and Regression

Correlation: Meaning and Types - Karl Pearson's Correlation Co-efficient -Spearmen's Rank Correlation - Regression: Meaning and Uses of Regression -Estimation and Interpretation of Regression Line.

v. Index Numbers and Time Series Analysis

Index Numbers: Meaning and Uses - Types of Index Numbers - Methods of Index Numbers: Laspayer, Paasche and Fisher - Analysis of Time-Series: Meaning and Uses - Components of Time Series Analysis: Secular, Seasonal, Cyclical and Irregular Variations - Methods of Measurement of Secular Trends: Graphic, Semi-Averages, Moving Averages and Least Squares Methods.

9. Banking and Economics of Infrastructure

i. Commercial and Central Banking

Commercial Banks: Concept and Types - Functions and Principles of Commercial Banks - Balance Sheet of Commercial Banks - Process of Credit Creation - Social Responsibility, Importance and Growth of Commercial Banks in India - Central Banking - Functions of Reserve Bank of India - Concept and Objectives of the Monetary Policy – Instruments of Monetary Policy - Financial Sector Reforms in India. Demonetisation, Digital Payments (awareness of Cyber Crime).

ii. Financial and Investment Banking

Concept Types, Functions and Growth of Non-Banking Financial Intermediaries - Their Impact on Indian Economy - Measures Taken to Control Their Operations -

Development Bank Concept, Functions and Importance - Functioning of Different Development Banks - Investment Banking - Merchant Banking.

iii. Money Market and Capital Market (Financial Markets)

Money Market: Concept and Characteristics - Components and Sub-Markets of Money Market - Functions of Money Market - Recent Trends and Importance of Money Market in India - Capital Market: Concept. Functions and Importance -Components of Capital Market Primary and Secondary Markets - Stock Exchange: Concept and Functions - SEBI and its Functions.

iv. Infrastructure and Economic Development

Concept of Infrastructure - infrastructure as a Public Good - Special Characteristics of Public Utilities - Importance of Infrastructure in Economic Development - Trends in the Growth of Infrastructure in India - Classification of Infrastructure: Social and Physical Infrastructure - Social Infrastructure: Education, Health and Hygiene - Human Resource Development Concept, Scope and importance - Education in India: Planning, Policies and Financing -Trends in the Growth of Education in India - Health in India Planning Programmes and Importance.

v. Physical Infrastructure

Types of Physical Infrastructure - Concept of Energy - Sources of Energy Renewable & Non- Renewable and Conventional & Non-Conventional Energy - Sources of Commercial Energy. Coal, Oil & Gas and Electric Power – Transport.

Modes / Categories of Transport: Roadways. Railways, Airways and Waterways - Role of Transportation in Economic Development - Information and Communication Technology (ICT): Concept, Growth, Trends and Importance.

10. Economics of Environment

i. Introduction to Environmental Economics

Concepts of Ecology and Environment - Interaction Among Ecology, Environment and Economy Micro Economic Theory of Environment – The

Pricing of the Environ-mental Variables - Pareto Optimality and Market Failure in the Presence of Externalities - Bio-Diversity: Meaning, Uses, Effects and Conservation.

ii. Resource Allocation

Natural Resources: Meaning, Features, Classification and Importance -Economics of Exhaustible, Non-Exhaustible Resources - Problems of Resource Allocation - Natural

Resources Depletion: Optimal Rate of Depletion - Common Property Resources: Problems - Conservation of Resources - Implications of Ecological Imbalances.

iii. Environmental Valuation

Valuation of Non-Market Goods and Services: Measurement Methods -Environmental Degradation: Concept and Causes - Valuation of Environmental Degradation - Direct and Indirect Methods - Degradation of Land (Soil), Forest and Natural Resources: Causes and Effects - Cost-Benefit Analysis of Environmental Policies and Regulations.

iv. Sustainable Development

Impact of Environment on GNP Limits to Growth - Sustainable Development: Concept and Rules Modern and Neo-Classical Views on Sustainable Development - Peoples Movement for Sustainable Development - Development vs Sustainable Development.

v. Environmental Pollution and Policies

Environment and Economy Interaction - Industrial and Agricultural Technology: Its Impact on Environment - Different Types of Pollution Their Causes and Effects - Environmental Policy and Conservation and Protection of Eco-System -Implementation of Environmental Policies in India - Global Environmental issues.

Part V - Pedagogy

1. The Nature of Social Sciences and its Historical Development including the contributions of important Social Scientists and thinkers given in the school textbooks. Importance of Social Sciences in School Curriculum.
2. Values, Aims, Objectives and Learning outcomes of Teaching Social Science.
3. Psychology of Teaching and Learning Social Sciences
4. Social Sciences Curriculum: Construction Organization and Development of syllabus, Text book development academic standards constructional approach
5. Approaches, Methods and Techniques of Teaching Social Sciences with special reference to the topics in the School Curriculum, NCF 2005, SCF 2011.
6. Planning for Effective Instruction in Social Sciences: Different Plans and Designing Learning Experiences.
7. Learning Resources and Designing Instructional Material in Social Sciences: Social Sciences Labs; Teaching Aids; Textbooks; ICT in Social Sciences – Resources - Community Resources.
8. Measurement and Evaluation in Social Sciences: Continuous and Comprehensive Evaluation (CCE); Tools and Techniques of Evaluation; Achievement and Diagnostic Tests.
9. Learning Disabilities/Difficulties and Education of Exceptional/ Disabled Children in Social Sciences
10. Social Sciences and Everyday Life: Non-formal Social Sciences Education.
11. Teaching and learning of Economics.
12. Teaching and learning strategies, Resources in learning of civics.

13. Qualities of Social Science Teacher - Roles and Responsibilities.
14. Need of Social Science at present Society.

Annexure VIII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Commerce

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV – Content

1. **Managerial Economics:** Nature and Scope of Managerial Economics – Demand Analysis – Production Analysis – Cost Analysis – Market Structure.
2. **Business Environment and Policy:** Micro, Macro and Policy Environment – Liberalisation and Globalisation – Public Sector and Privatisation – Foreign Capital – WTO and Trade Policy.
3. **Principles of Marketing:** Nature and scope of Marketing – Marketing Environment – Market Segmentation – Consumer Behaviour – Marketing Planning and Strategy.
4. **Marketing Management:** Product Management – Price Management – Promotion Management – Channel Management and Retailing – Marketing Information System and Marketing Research.
5. **Organisation Theory and Behaviour:** Organisation Theories and Features and Scope of Organisational Behaviour – Individual and Group Behaviour – Motivation, Morale and Organisational Culture – Organisational Power and Politics Conflict – Communication, Leadership and Change.
6. **Human Resources Management -** Nature and Scope of Human Resource Management and Job Design – Human Resource Planning – Recruitment, Training, Development and Performance Management – Compensation Management and Employee Relations – Knowledge Management – Virtual Organisations and Learning Organisation.
7. **Research Methodology and Statistical Analysis:** Meaning, Need Classification and Role of Quantitative Techniques – Collection, Presentation and Analysis of Data – Interpretation and Report Writing – Probability and Probability Distributions – Association of Attributes & Chi Square Test.
8. **Quantitative Techniques for Business Decisions:** Statistical Estimation and Hypothesis Testing – Sampling of Variables – Analysis of Variance and Statistical

Quality Control – Statistical Decision Theory and Games Theory – Linear Programming.

9. **Cost Accounting and Control:** Nature and Scope of Cost Accounting – Process Costing – Marginal Absorption and Differential Costing – Budgetary Control – Standard Costing.
10. **Accounting Standards & Financial Management:** Accounting Principles and Indian Accounting Standards – International Financial Reporting Standards (IFRS) and Financial Reporting – Nature and Goals of Financial Management – Capital Budgeting and Working Capital Management – Financing and Dividend Decisions.

Part V - Pedagogy

1. The Nature of Social Sciences and its Historical Development including the contributions of important Social Scientists and thinkers given in the school textbooks. Importance of Social Sciences in School Curriculum.

2. Values, Aims, Objectives and Learning outcomes of Teaching Social Science.

3. Psychology of Teaching and Learning Social Sciences

4. Social Sciences Curriculum: Construction Organization and Development of syllabus, Text book development academic standards constructional approach

5. Approaches, Methods and Techniques of Teaching Social Sciences with special reference to the topics in the School Curriculum, NCF 2005, SCF 2011.

6. Planning for Effective Instruction in Social Sciences: Different Plans and Designing Learning Experiences.

7. Learning Resources and Designing Instructional Material in Social Sciences: Social Sciences Labs; Teaching Aids; Textbooks; ICT in Social Sciences – Resources - Community Resources.

8. Measurement and Evaluation in Social Sciences: Continuous and Comprehensive Evaluation (CCE); Tools and Techniques of Evaluation; Achievement and Diagnostic Tests.

9. Learning Disabilities/Difficulties and Education of Exceptional/ Disabled Children in Social Sciences

10. Social Sciences and Everyday Life: Non-formal Social Sciences Education.

11. Teaching and learning of Economics.

12. Teaching and learning strategies, Resources in learning of civics.

13. Qualities of Social Science Teacher - Roles and Responsibilities.

14. Need of Social Science at present Society.

Annexure IX

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Civics

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management,

Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV – Content

1. Political Science

i. Introduction: Definition, Meaning, Nature, Scope and Importance of Political Science, relationship between political science and other social sciences
ii. State: Essential Elements – Relationship between the state and other institutions –state and society, state and government, state and associations - Sovereignty and Theories of Sovereignty: Monistic and Pluralistic Theories of Sovereignty - Theories of Origins of State: Divine Origin, Social Contract, Historical and Evolutionary - Sphere of State activity: Laissez Faire, Anarchist, Fascist, Socialist, Marxist, Welfare State
iii. Nation States - Nationalism
iv. Political concepts: Law, Liberty, Equality, Rights, Justice, Power and different forms of power
v. Governments: Classification of Governments - Traditional and Modern Forms Governments:
vi. Unitary, Federal, Presidential and Parliamentary
vii. Democracy: Direct Democracy and Indirect Democracy - Direct Democratic Devices
viii. Theory of Separation of Powers Legislature, Executive and Judiciary and their functions
ix. Social and Political Movements: Separate Telangana Statehood Movement - Dalit and Tribal Movements, Women's Movement and Environmental Struggles
x. Rights and Duties of a Citizen
xi. Important Political Ideologies
xii. Citizenship
xiii. Democracy, Secularism, Socialism
xiv. Organs of the Government
xv. Forms of Governments

2. Public Administration

i. Indian Constitution – Historical Background
ii. Fundamental Rights and Directive Principles of State Policy
iii. Union Government
iv. State Government
v. Local Governments
vi. Centre State Relations
vii. Election Process in India
viii. Contemporary issues in Indian Politics
ix. Emergence of Telangana State
x. SMART Governance
xi. India and the world – Foreign Policy- India and Non-Aligned Movement –BRICKS – BIMSTEC, SAARC, United Nations Organisation

Part V - Pedagogy

1. The Nature of Social Sciences and its Historical Development including the contributions of important Social Scientists and thinkers given in the school textbooks. Importance of Social Sciences in School Curriculum
2. Values, Aims and Objectives of Teaching Social Sciences – objectives & strategies of teaching civics up to Higher Secondary Level
3. Psychology of Teaching and Learning Social Sciences
4. Social Sciences Curriculum: Construction and Organization, Development of Syllabus, & Text books, Academic standards
5. Approaches, Methods and Techniques of Teaching Social Sciences with special reference to topics in the School curriculum, NCF-2005, SCF-2011, Constructivist Approach, Micro Teaching
6. Planning for Effective Instruction in Social Sciences: Different Plans and Designing Learning Experiences.
7. Learning Resources and Designing Instructional Material in Social Sciences; Social Sciences Labs: Teaching Aids; Textbooks: ICT in Social Sciences, Community Resources
8. Measurement and Evaluation in Social Sciences: Continuous and Comprehensive Evaluation (CCE); Tools and Techniques of Evaluation: Achievement and Diagnostic Tests.
9. Learning Disabilities/Difficulties and Education of Exceptional/ Disabled Children in Social Sciences
10. Social Sciences and Everyday Life; Non-formal Social Sciences Education.
11. Qualities of Good Social Science Teacher, Roles and Responsibilities

Annexure X

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Physics

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. Mathematical Methods of Physics

i. Physical World- What is Physics, Scope and excitement of Physics, Physics, technology and society, Fundamental forces in nature, nature of Physical laws.

ii. Units and Measurements - The International system of units, Measurement of length, Measurement of mass, Measurement of time, Accuracy, precision of instruments and errors in measurement, Significant figures, Dimensions of physical quantities, Dimensional formulae and dimensional equations, Dimensional analysis and its applications

2. Kinematics and Dynamics

i. Motion in a Straight line - Position, path length and displacement, Average velocity and average speed, Instantaneous velocity and speed, Acceleration, Kinematic equations for uniformly accelerated motion, Relative Velocity

ii. Motion in a Plane- Scalars and vectors, Multiplication of vectors by real numbers, Addition and subtraction of vectors graphical method, Resolution of vectors, Vector addition Analytical method, Motion in a plane, Motion in a plane with constant acceleration, Relative velocity in two dimensions, Projectile motion, Uniform circular motion

iii. Laws of Motion - Aristotle's facility, the law of inertia, Newton's first, second and third laws of motion, Conservation of momentum, Equilibrium of a particle, Common forces in mechanics, Circular motion, Solving problems in mechanics

iv. System of Particles and Rotational Motion - Centre of mass, Motion of Centre of mass, Centre of gravity, Linear momentum of a system of particles, Vector product of two vectors, Angular velocity and its relation with linear velocity, Torque and angular momentum, Equilibrium of a rigid body, Moment of inertia, Dynamics of rotational motion about a fixed axis, Angular momentum in case of rotations about a fixed axis, Rolling motion

v. Oscillations - Periodic and oscillatory motions, Simple Harmonic motions, Simple Harmonic motion and uniform circular motion, Velocity and acceleration in simple harmonic motion, Force law for simple harmonic motion, Energy in simple harmonic motion, some systems executing simple harmonic motion, damped simple harmonic motion, Forced oscillations and resonance

vi. Gravitation - Kepler's laws, Universal law of gravitation, The Gravitational constant, Acceleration due to gravity of Earth, Acceleration due to gravity below and above the surface of Earth, Gravitational Potential energy, Escape Speed, Earth Satellite, Energy of an orbiting satellite, Geo Stationary and Polar Satellites, Weightlessness

vii. Mechanical Properties of Solids - Elastic behaviour of solids, Stress and Strain, Hooke's Law, Stress-Strain curve, Elastic Moduli, applications of elastic behaviour of materials.

viii. Mechanical Properties of Fluids - Pressure, Streamline Flow, Bernoulli's Principle, Viscosity, Reynolds Number, Surface Tension

3. Natural Phenomena

i. Work, Energy and Power - Notions of work and kinetic energy: The work-energy theorem, Work, Kinetic Energy, Work done by a variable force, The work-energy theorem for a variable force. The concept of potential energy, The conservation of mechanical energy, The potential energy of a spring, Various forms of energy: the law of conservation of energy, Power Collisions

ii. Waves - Transverse and Longitudinal waves, Displacement relation in a progressive wave, Speed of a Travelling Wave, The principle of superposition of waves, Reflection of waves, Beats, Doppler Effect

iii. Ray Optics and Optical Instruments - Reflection of Light by Spherical Mirrors, Refraction, Total Internal Reflection, Refraction at Spherical Surfaces and by Lenses, Refraction through a Prism, Dispersion by a Prism, Some Natural Phenomena due to Sunlight, Optical Instruments

iv. Wave Optics - Huygens Principle, Refraction and reflection of plane waves using Huygens Principle, Coherent and Incoherent Addition of Waves, Interference of Light Waves and Young's Experiment, Diffraction, Polarisation

4. Electricity and Electromagnetism

i. Electric Charges and Fields - Electric Charges, Conductors and Insulators, Charging by Induction, Basic Properties of Electric Charge, Coulomb's Law, Forces between Multiple charges, Electric Field, Electric Field Lines, Electric Flux, Electric Dipole, Dipole in a uniform external field, Continuous Charge Distribution, Gauss's Law, Application of Gauss' Law

ii. Electrostatic Potential and Capacitance - Electrostatic Potential, Potential due to a point charge, Potential due to an Electric Dipole, Potential due to a System of Charges, Equipotential Surfaces Potential Energy of a System of Charges, Potential Energy in an External field, Electrostatics of Conductors, Dielectrics and Polarisation, Capacitors and Capacitance, The Parallel Plate Capacitor, Effect of Dielectric on Capacitance, Combination of Capacitors, Energy Stored in a Capacitor, Van de Graaff Generator .

iii. Current Electricity - Electric current, Electric current in conductors, Ohm's Law, Drift Electrons and Origin of Resistivity, Limitations of Ohm's Law, Resistivity of various Materials, Temperature Dependence of Resistivity, Electric Energy, Power, Combination of Resistors – Series and Parallel, Cells, emf, Internal Resistance, Cells in Series and in Parallel, Kirchhoff's Laws, Wheatstone Bridge, Meter Bridge, Potentiometer

iv. Moving Charges and Magnetism - Magnetic Force, Motion in a Magnetic field, Motion in combined Electric and Magnetic Fields, Magnetic Field due to a Current Element, Biot-Savart Law, Magnetic Field on the Axis of a Circular Current Loop, Ampere's Circuital Law, The Solenoid and the Toroid, Force between two Parallel Currents, The Ampere, Torque on Current Loop, Magnetic Dipole, The Moving Coil Galvanometer

v. Magnetism and Matter - The Bar Magnet, Magnetism and Gauss's Law, The Earth's Magnetism, Magnetisation and Magnetic Intensity, Magnetic Properties of Materials, Permanent Magnets and Electromagnets

vi. Electromagnetic Induction - The experiments of Faraday and Henry, Magnetic Flux, Faraday's Law of Induction, Faraday's Law of Induction, Lenz's Law and Conservation of Energy, Motional Electromotive Force, Energy consideration: A Quantitative Study, Eddy Currents, Inductance, AC Generator

vii. Alternating Current - Introduction, AC voltage applied to a Resistor, Representation of AC Current and Voltage by Rotating Vectors- Phasors, AC voltage

applied to an Inductor, AC voltage applied to a Capacitor, AC voltage applied to a Series LCR Circuit, Power in AC Circuit: The Power Factor, LC Oscillations, Transformers

viii. Electro Magnetic Waves - Displacement Current, Electro Magnetic Waves,4 Electromagnetic Spectrum

5. Thermodynamics and statistical Physics

i. Thermal Properties of Matter - Temperature and Heat, Measurement of Temperature, Ideal Gas Equation and Absolute Temperature, Thermal Expansion, Specific Heat Capacity, Calorimetry, Change of State, Newton's Law of Cooling

ii. Thermodynamics - Thermal equilibrium, Zeroth law of thermodynamics, Heat, Internal energy and work, First law of thermodynamics, Specific heat capacity, Thermodynamic state variables and equation of state, Thermodynamic Process, Heat Engines, Refrigerators and Heat pumps, Second law of thermodynamics, Reversible and irreversible processes, Carnot engine

iii. Kinetic Theory - Molecular nature of matter, Behaviour of gases, Kinetic theory of an ideal gas, Laws of equipartition of energy, Specific heat capacity, Mean free path

6. Electronics

i. Semiconductor Electronics: Materials, Devices and Simple Circuits – Classification of Metals, Conductors and Semiconductors Intrinsic Semiconductor, Extrinsic Semiconductor, p-n junction, Semiconductor diode, Application of Junction Diode as a Rectifier, Special Purpose p-n Junction Diodes, Junction Transistor, Digital Electronics and Logic Gates, Integrated Circuits

ii. Communication Systems - Elements of communication system, Basic Terminology used in Electronic Communication Systems, Bandwidth of Signals, Bandwidth of Transmission Medium, Propagation of Electromagnetic Waves, Modulation and its Necessity, Amplitude Modulation, Production of Amplitude Modulated Wave, Detection of Amplitude Modulated Wave

7. Atomic & Molecular Physics

i. Dual Nature of Radiation and Matter - Electron Emission, Photoelectric Effect, Experimental Study of Photoelectric Effect, Photoelectric Effect and Wave Theory of Light, Einstein's Photoelectric Equation: Energy Quantum of Radiation, Particle Nature of Light: The Photon, Wave Nature of Matter, Davisson and Germer Experiment

ii. Atoms - Alpha-particle Scattering and Rutherford's Nuclear model of Atom, Atomic Spectra, Bohr Model of the Hydrogen Atom, The Line Spectra of the Hydrogen Atom, De Broglie's Explanation of Bohr's Second Postulate of Quantisation

iii. Nuclei - Atomic Masses and Composition of Nucleus, Size of the Nucleus, Mass-Energy and Nuclear Binding Energy, Nuclear Force, Radioactivity, Nuclear Energy

Part V- Pedagogy

1. Nature of Physical Sciences

i. Science as a particular way of looking at nature, a rapidly expanding body of knowledge, an interdisciplinary area of learning, always tentative, an approach to investigation and as a Process of constructing knowledge.

ii. Scientific Method: Observation, inquiry, hypothesis, experimentation, data collection, generalization.

iii. How Science Works, how children learn science?

2. Science and Society – Historical Development

i. Physical science for environment, health, peace, equity (Gender & Science) and Inclusion.

ii. Need and Significance of History of science in teaching science – Historical development perspective of Science.

iii. Contributions of Scientists– Isaac Newton, John Dalton, J.C. Bose, Albert Einstein, Niels Bohr, C.V. Raman, Louis Victor de Broglie, Bimla Buti, Venkataraman Ramakrishnan, APJ Abdul Kalam, Marie Curie.

3. Aims of Learning Physical Science

i. Aims of Learning Science

ii. Knowledge and Understanding through Science

iii. Nurturing Process Skills of Science, Curiosity, Creativity and Aesthetic Sense

iv. Development of Scientific Attitude and Scientific Temper- Respect for evidence, Open-mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism, Objectivity, Perseverance – Notion of Popular Science – Its importance and involvement of science teacher.

v. Relating Physical Science Education to Natural and Social Environment, Technology, Society and Environment.

vi. Imbibing the Values Through Science Teaching – Feynman's Perspective of Science values

vii. Development of Problem Solving Skills

4. Learning objectives of physical science

i. Meaning of Learning Objectives

ii. Developing Learning Objectives, Features of well-developed learning objectives.

iii. Bloom's Taxonomy, Anderson and Krathwohl's Taxonomy

iv. Writing Learning Objectives, Remembering, Understanding, Applying, Analysing, Evaluating, Creating

v. Learning Objectives for Upper Primary, Secondary and Higher Secondary Stages

vi. Learning Objectives in the Constructivist Perspective

vii. Academic Standards in Physical Science

5. Pedagogical Shift in Physical Science

i. Pedagogical Shift:

a. Science as Fixed Body of Knowledge to the Process of Constructing Knowledge

b. Nature of Science

c. Learners learning and teacher

d. Physical Science curriculum, Diversity in class, Approaches

e. Planning Teaching-Learning Experiences

f. Assessment

g. Inclusion- Information and Communication Technology (ICT)

h. Professional development

ii. Democratising Science Learning: Critical Pedagogy- Critical pedagogy and role of Teachers.

iii. Content-cum-methodology: Meaning, Concept & Nature

iv. Steps to Content-cum-methodology

v. Steps to Pedagogical Analysis

vi. Content and Teaching Skills

6. School Curriculum in Physical Science

i. History of Development of Curriculum Framework

ii. Curriculum Framework, Curriculum and Syllabus

iii. Curriculum Development; From Subject-centred to Behaviourist to Constructivist Approach,

iv. Recommendations of NCF-2005 and APSCF-2011 on Science Curriculum-National Focus Group position paper on Science and State position paper (2011) on Science

v. Print Resources- Textbooks, Popular science books, Journals and magazines

vi. Dale's Cone of Experience- Using the Cone of Experience

vii. Teacher as Curriculum Developer – Localized curriculum, place for Artisans knowledge systems in curriculum, local Innovators and Innovative Practices of science.

7. Approaches and Strategies for Learning Physical Science

i. Approaches and Strategies for Learning Physical Science, Difference between approach and strategy.

ii. Different approaches and strategies of learning

   a. Scenario from 1950–1980
   b. Post 1980 Scenario
   c. Selecting appropriate approach and strategy

iii. Essential components of all approaches and strategies

iv. Constructivist Approach – Science teaching strategies – State developed model.

v. 5E Learning Model

vi. Collaborative Learning Approach (CLA)

   a. Steps of collaborative approach
   b. Ensuring meaningful learning through CLA
   c. Ways of applying collaborative learning approach
   d. Limitation of collaborative learning approach

vii. Problem Solving Approach (PSA)

   a. Steps in problem solving approach,
   b. Teacher's role in problem solving approach,
   c. Problem solving approach: an example

viii. Concept Mapping- Phases of the concept mapping, Uses of concept maps

ix. Experiential Learning- Abilities of an experiential learner

8. Learning Resources – Community, ICT and Laboratory

i. Using Community Resources- Bringing community to the class, Taking class to the community: Field visit

ii. Pooling of Learning Resources

a. Learning Resources from Immediate Environment (Natural pH indicators, Soaps and detergents, Baking soda, Washing soda, Common salt, Fruits, Fibre, Pulleys, Projectiles, Lenses and Mirrors, Inter-conversion of one form of energy to other, Propagation of waves in Solid, Liquid and Gas)

b. Improvisation of Apparatus

c. Inexpensive Sources of Chemicals

iii. Science Kits

iv. Laboratory as a Learning Resource- Approaches to laboratory work, Planning and organising laboratory work, Working in group in the laboratory

v. Handling Hurdles in Utilization of Resources – Addressing underutilization of resources.

vi. ICT resources – e-Text books, Journals, Websites, Magazines, Different forms of ICT and its applications in science education- Audio-aids, Video-aids, Audio-Video aids, educational T.V., Use of computer for simulations, internet and Open Educational Resources

9. Planning for Teaching-Learning of Physical Sciences

i. Planning - Annual Plan, Unit Plan and Period plan

ii. Identification and Organisation of Concepts for teaching -learning of science / Physics and Chemistry (Motion, Work and Energy, Matter and their Measurements, Carbon and its Compounds, Periodic Properties of Elements, Atomic Structure, Dual Nature of Matter and Radiation).

iii. Elements of a Physical Science Lesson- Learning objectives and key concepts, Pre-existing knowledge, Teaching-learning materials and involving learners in arranging them, Introduction, Presentation/ Development, Assessment: Acceptable evidences that show learners understand (i) Determining learning evidences (ii) Planning of the acceptable evidences of learning for assessment Extended learning/assignment.

iv. Making Groups-Why group learning? Facilitating formation of groups

v. Planning and Organising Activities in Physical Science

vi. Planning Laboratory Work – State commitments in organizing experiments Text-book orientation.

vii. Planning ICT Applications - Integrating ICT in teaching and learning process

10. Physical Science Teacher

i. Characteristics and role Science Teacher

ii. Professional Development

iii. Reflective Practices

iv. Science Teacher as a Researcher

11. Tools and Techniques of Assessment

i. Test, Examination, Measurement, Assessment and Evaluation.

ii. Continuous and Comprehensive Evaluation (CCE)- Educational assessment and educational evaluation, Performance-based assessment: A flexible way of school based assessment.

iii. Assessment Framework,

(a) Purpose of assessment

(b) Learning Indicators (LI);

- Types of indicators
- Illustrations of Learning Indicators,
  - Assessment of activity
  - Assessment of presentation
  - Assessment of group work
  - Assessment of collaborative learning

(c) Tools and Techniques of Assessment;

- Written test
- Project Work
- Field trips and field diary
- Laboratory work
- Interview/Oral test
- Journal writing.

(d) Recording and Reporting

- Measurement of students' achievements
- grading system
- Measurement of process skills
- Measurement of attitudes
- Portfolios

(e) Reflecting Process; Assessment as a reflecting process

iv. Assessment of Learning of Students with Special Needs.

Annexure XI

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Chemistry

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

Inorganic chemistry:

1. **Atomic Structure**: Sub-atomic particles, Atomic models- Rutherford's nuclear model of atom, Developments to the Bohr's model of atom, Bohr's model for hydrogen atom. Towards quantum mechanical model of the atom. Quantum mechanical model of an atom. Important features of quantum mechanical model of atom-orbitals and quantum numbers-shapes of atomic orbitals-energies of orbitals-filling of orbitals in atoms. Aufbau principle, Pauli's exclusion principle and Hund's rule of maximum multiplicity-Electronic configurations of Atoms-Stability of half-filled and completely filled orbitals.
2. **Classification of Elements and Periodicity in Properties**: Need to classify elements, Genesis of periodic classification, Modern periodic law and present form of the periodic table, Electronic configuration of elements and the periodic table, Nomenclature of elements with atomic number greater than 100, Electronic configuration and types of elements s, p, d and f blocks. Trends in physical Properties-Periodic trends in chemical properties- Periodic trends and chemical reactivity
3. **Chemical Bonding and Molecular Structure**: Kossel - Lewis approach to chemical bonding, lonic or electrovalent bond, Bond Parameters, The Valence Shell Electron Pair Repulsion (VSEPR) theory. Valence bond theory, Hybridisation, Coordinate bond, Molecular orbital theory -bonding in some homonuclear diatomic molecules, Hydrogen bonding
4. **Hydrogen and its Compounds**

Position of hydrogen in the periodic table, Dihydrogen-occurrence and isotopes,

Preparation of dihydrogen, Properties of dihydrogen, Hydrides: Ionic, covalent, and non-stoichiometric hydrides, Water: Physical properties; structure of water, ice chemical properties of water; hard and soft water, temporary and permanent hardness of water, Hydrogen peroxide: Preparation; physical properties; structure and chemical properties; storage and uses. Heavy water, Hydrogen as a fuel

5. General Principles of Metallurgy

Occurrence of Metals, Concentration of Ores, Extraction of Crude Metal from Concentrated Ore, Thermodynamic Principles of Metallurgy, Electrochemical Principles of Metallurgy, Oxidation – Reduction, Refining, Uses of Aluminium, Copper, Zinc and Iron

6. s- Block elements (Alkali and Alkaline Earth Metals)

Group 1 Elements:

Alkali metals; Electronic configurations; atomic and ionic radii; ionization enthalpy; hydration enthalpy: physical properties; chemical properties; uses, General characteristics of the compounds of the alkali metals: oxides; halides; salts of oxy acids, Anomalous properties of Lithium: Some important compounds of Sodium: Sodium carbonate; Sodium chloride; Sodium hydroxide; Sodium hydrogen carbonate. Biological importance of Sodium and Potassium.

Group 2 Elements:

Alkaline earth elements; Electronic configuration; ionization enthalpy; hydration enthalpy; physical properties; chemical properties; uses, General characteristics of compounds of the Alkaline earth metals. oxides, hydroxides, halides, salts of oxyacids (carbonates, sulphates and nitrates), Anomalous behaviour of beryllium; its diagonal relationship with aluminium, Some important compounds of calcium, Biological importance of calcium and magnesium

7. p-Block Elements – Group 13 (Boron Family)

General introduction - Electronic configuration,atomic radii, ionization enthalpy, electro negativity;physical & chemical properties ,Important trends and anomalous properties of Boron, Some important compounds of Boron - borax, ortho boric acid, diborane, Uses of Boron, Aluminium and their compounds

8. p-Block Elements - Group 14 (Carbon Family)

General introduction - Electronic configuration, atomic radii, ionization enthalpy, electro negativity; physical & chemical properties, Important trends and anomalous properties of Carbon, Allotropes of Carbon, Uses of Carbon, Some important

compounds of Carbon and Silicon - Carbon monoxide, Carbon dioxide, Silica, Silicones, Silicates and Zeolites

9. p-Block Elements

Group -15 Elements

Introduction, Dinitrogen, Ammonia, Oxides of nitrogen, Nitric acid, Phosphine

Phosphorous-allotropic forms, Phosphorous Halides, Oxoacids of Phosphorus

Group -16 Elements

Introduction, Dioxygen, Simple Oxides, Ozone, Sulphur-Allotropic forms, Sulphur dioxide, Oxoacids of Sulphur, Sulphuric Acid

Group -17 Elements

Introduction, Chlorine, Hydrogen Chloride, Oxoacids of Halogens, Interhalogen Compounds

Group -18 Elements

Introduction- Occurrence, Electronic Configuration, Ionisation Enthalpy, Atomic radii, Electron Gain Enthalpy Physical and Chemical Properties

10. d and f Block Elements and Coordination Compounds

Position in the Periodic Table, Electronic Configuration, General Properties of The Transition Elements (d-Block), Some Important Compounds of Transition Elements Inner Transition Elements (f-Block),The Actinoids, Some Applications of d- and f-Block Elements, Werner's Theory of Coordination Compounds, Definitions of Some Terms used in Coordination Compounds, Nomenclature of Coordination Compounds, Isomerism in Coordination Compounds, Bonding in Coordination Compounds, Bonding in Metal Carbonyls, Stability of Coordination Compounds, Importance and Applications of Coordination Compounds

Physical chemistry:

11. Stoichiometry: Some basic concepts, Laws of chemical combinations, Gay Lussac's law of Gaseous volumes, Dalton's atomic theory, Avogadro law, Atomic and molecular masses- mole concept and molar mass concept of equivalent weight, Percentage composition of compounds and calculations of empirical and molecular formulae of compounds, Stoichiometry and stoichiometric calculations, Methods of expressing concentrations of solutions, Redox reactions, Oxidation number concept, Types of redox reactions, Balancing of redox reactions - oxidation number, method-half reaction (ion-electron) method, Redox reactions in titrimetry

12. States of Matter: Gases and Liquids:

Intermolecular forces, Thermal energy, Intermolecular forces Vs Thermal interactions. The gaseous state, The gas laws, Ideal gas equation, Graham's law of diffusion - Dalton's law of partial pressures, Kinetic molecular theory of gases, Kinetic gas equation of an ideal gas (no derivation)- Deduction of gas laws from kinetic gas equation, Distribution of molecular speeds - rms, average and most probable speeds-kinetic energy of gas molecules, Behaviour of real gases - deviation from ideal gas behaviour -compressibility factor Vs pressure diagrams of real gases, Liquefaction of gases, Liquid state - properties of liquids in terms of inter molecular interactions - vapour pressure, viscosity and surface tension (Qualitative idea only, no mathematical derivation)

13. Solid State

General Characteristics of Solid State, Amorphous and Crystalline Solids, Classification of Crystalline Solids, Probing the structure of solids: X-ray crystallography, Crystal Lattices and Unit Cells, Number of Atoms in a Unit Cell

Close Packed Structures, Packing Efficiency, Calculations Involving Unit Cell Dimensions, Imperfections in Solids, Electrical Properties, Magnetic Properties

14. Solutions

Types of Solutions, Expressing Concentration of Solutions, Solubility, Vapour Pressure of Liquid Solutions, Ideal and Non-Ideal Solutions Colligative Properties and Determination of Molar Mass, Abnormal Molar Masses

15. Electrochemistry and Chemical Kinetics

Electrochemistry

Electrochemical Cells, Galvanic Cells, Nernst Equation, Conductance of Electrolytic Solutions, Electrolytic Cells and Electrolysis, Batteries, Fuel Cells, Corrosion

Chemical Kinetics

Rate of a Chemical Reaction, Factors Influencing Rate of a Reaction, Integrated Rate Equations, Pseudo First Order Reaction, Temperature Dependence of the Rate of a Reaction, Collision Theory of Chemical Reaction Rates

16. Surface Chemistry

Adsorption, Catalysis, Colloids, Classification of Colloids, Emulsions, Colloids around Us

17. Chemical Equilibrium and Acids and bases: Equilibrium in physical process, Equilibrium in chemical process-dynamic equilibrium, Law of chemical equilibrium - Law of mass action and equilibrium constant, Homogeneous equilibria, equilibrium constant in gaseous systems, relationship between Kp and Kc, Heterogeneous

equilibria, Applications of equilibrium constant, Relationship between equilibrium constant 'K', reaction Quotient 'Q' and Gibbs energy 'G', Factors affecting equilibria, - Le-chatelier's principle, application to industrial synthesis of Ammonia and Sulphur trioxide, Ionic equilibrium in solutions. Acids, Bases and Salts- Arrhenius, Bronsted-Lowry and Lewis concepts of Acids and Bases, Ionisation of Acids and Bases, Buffer solutions, Solubility equilibria of sparingly soluble salts, Solubility product constant-common ion effect on solubility of Ionic salts

18. **Thermodynamics**: Thermodynamic terms, Applications-work-enthalpy-extensive and intensive properties-heat capacity, Measurement of "U and H": Calorimetry, Enthalpy change, 'ΔH' of reactions, Enthalpies for different types of reactions, Spontaneity, Gibbs Energy change and equilibrium, Absolute entropy and the third law of thermodynamics.

Organic Chemistry:

19. **Organic Chemistry – Some Basic Principles and Techniques**

General introduction, Tetravalency of Carbon: shapes of organic compounds, Structural representations of organic compounds, Classification of organic compounds, Nomenclature of organic compounds, Isomerism, Fundamental concepts in organic reaction mechanisms, Methods of purification of organic compounds, Qualitative elemental analysis of organic compounds, Quantitative elemental analysis of organic compounds,

Hydrocarbons

Classification of hydrocarbons,

Alkanes - Nomenclature, isomerism (structural and conformations of Athane only), preparation of alkanes -properties of alkanes

Alkenes- Nomenclature, structure of ethene, isomerism (structural and geometrical)-methods of preparation of Alkenes-properties of Alkenes

Alkynes- Nomenclature and isomerism, structure of Acetylene, methods of preparation of Acetylene-physical properties and chemical reactions of Alkynes

Aromatic Hydrocarbons: Nomenclature and isomerism, structure of benzene, resonance and aromaticity-preparation of benzene physical and chemical properties of benzene-directive influence of functional groups in mono substituted benzene. Carcinogenicity and toxicity

20. **Haloalkanes and Haloarenes**

Classification, Nature of C-X bond, Methods of Preparation, Physical Properties, Chemical Reactions, Polyhalogen Compounds

21. **Organic Compounds containing C, H and O**

Alcohols, Phenols, Ethers

Classification, Nomenclature, Structures of Functional Groups, Alcohols and Phenols, Physical Properties, Chemical Reactions, Some Commercially Important Alcohols, Ethers

Aldehydes and Ketones

Nomenclature and Structure of Carbonyl Group, Preparation of Aldehydes and Ketones, Physical Properties, Chemical Reactions, Uses of Aldehydes and Ketones

Carboxylic Acids

Nomenclature and Structure of Carboxyl Group, Methods of Preparation of Carboxylic Acids, Physical Properties, Chemical Reactions, Uses of Carboxylic Acids

22. Organic Compounds containing Nitrogen

Amines

Structure of Amines, Classification, Nomenclature, Preparation of Amines, Physical Properties, Chemical Reactions

Diazonium Salts

Method of Preparation of Diazonium Salts, Physical Properties, Chemical Reactions,Importance of Diazonium Salts in Synthesis of Aromatic Compounds

Cyanides and Isocyanides

Structure of cyanides and isocyanides, Preparation

23. Polymers

Classification of Polymers, Types of Polymerization Reactions, Molecular Mass of Polymers, Biodegradable Polymers, Polymers of Commercial Importance

24. Biomolecules

Carbohydrates, Proteins, Enzymes, Vitamins, Nucleic acids, Hormones

25. Environmental Chemistry

Definition of terms: Air, Water and Soil Pollutions, Environmental pollution, Atmospheric pollution, Acid rain: Particulate pollutants, Stratospheric pollution, Water pollution, Soil Pollution: Pesticides, industrial wastes. Strategies to control environmental pollution, Green chemistry

26. Chemistry in everyday life

Drugs and their Classification, Drug-Target Interaction, Therapeutic Action of Different Classes of Drugs, Chemicals in Food, Cleansing Agents

Part V- Pedagogy

1. **Nature of Physical Sciences**

Science as a particular way of looking at nature, a rapidly expanding body of knowledge, an interdisciplinary area of learning, always tentative, an approach to investigation and as a Process of constructing knowledge.

i. Scientific Method: Observation, inquiry, hypothesis, experimentation, data collection, generalization.

ii. How Science Works, how children learn science?

2. **Science and Society – Historical Development**

i. Physical science for environment, health, peace, equity (Gender & Science) and Inclusion.

ii. Need and Significance of History of science in teaching science – Historical development perspective of Science.

iii. Contributions of Scientists– Isaac Newton, John Dalton, J.C. Bose, Albert Einstein, Niels Bohr, C.V. Raman, Louis Victor de Broglie, Bimla Buti, Venkataraman Ramakrishnan, APJ Abdul Kalam, Marie Curie.

3. **Aims of Learning Physical Science**

i. Aims of Learning Science

ii. Knowledge and Understanding through Science

iii. Nurturing Process Skills of Science, Curiosity, Creativity and Aesthetic Sense

iv. Development of Scientific Attitude and Scientific Temper- Respect for evidence, Open-mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism, Objectivity, Perseverance – Notion of Popular Science – Its importance and involvement of science teacher.

v. Relating Physical Science Education to Natural and Social Environment, Technology, Society and Environment.

vi. Imbibing the Values Through Science Teaching – Feynman's Perspective of Science values

vii. Development of Problem Solving Skills

4. **Learning objectives of physical science**

i. Meaning of Learning Objectives

ii. Developing Learning Objectives, Features of well-developed learning objectives.

iii. Bloom's Taxonomy, Anderson and Krathwohl's Taxonomy

iv. Writing Learning Objectives, Remembering, Understanding, Applying, Analysing, Evaluating, Creating

v. Learning Objectives for Upper Primary, Secondary and Higher Secondary Stages

vi. Learning Objectives in the Constructivist Perspective

vii. Academic Standards in Physical Science

5. Pedagogical Shift in Physical Science

i. Pedagogical Shift:

a. Science as Fixed Body of Knowledge to the Process of Constructing Knowledge

b. Nature of Science

c. Learners learning and teacher

d. Physical Science curriculum, Diversity in class, Approaches

e. Planning Teaching-Learning Experiences

f. Assessment

g. Inclusion- Information and Communication Technology (ICT)

h. Professional development

ii. Democratising Science Learning: Critical Pedagogy- Critical pedagogy and role of Teachers.

iii. Content-cum-methodology: Meaning, Concept & Nature

iv. Steps to Content-cum-methodology

v. Steps to Pedagogical Analysis

vi. Content and Teaching Skills

6. School Curriculum in Physical Science

i. History of Development of Curriculum Framework

ii. Curriculum Framework, Curriculum and Syllabus

iii. Curriculum Development; From Subject-centred to Behaviourist to Constructivist Approach,

iv. Recommendations of NCF-2005 and APSCF-2011 on Science Curriculum-National Focus Group position paper on Science and State position paper (2011) on Science

v. Print Resources- Textbooks, Popular science books, Journals and magazines

vi. Dale's Cone of Experience- Using the Cone of Experience

vii. Teacher as Curriculum Developer – Localized curriculum, place for Artisans knowledge systems in curriculum, local Innovators and Innovative Practices of science.

7. Approaches and Strategies for Learning Physical Science

i. Approaches and Strategies for Learning Physical Science, Difference between approach and strategy.
ii. Different approaches and strategies of learning
  a. Scenario from 1950–1980
  b. Post 1980 Scenario
  c. Selecting appropriate approach and strategy
iii. Essential components of all approaches and strategies
iv. Constructivist Approach – Science teaching strategies – State developed model.
v. 5E Learning Model
vi. Collaborative Learning Approach (CLA)
  a. Steps of collaborative approach
  b. Ensuring meaningful learning through CLA
  c. Ways of applying collaborative learning approach
  d. Limitation of collaborative learning approach
vii. Problem Solving Approach (PSA)
  a. Steps in problem solving approach,
  b. Teacher's role in problem solving approach,
  c. Problem solving approach: an example
viii. Concept Mapping- Phases of the concept mapping, Uses of concept maps
ix. Experiential Learning- Abilities of an experiential learner

8. Learning Resources – Community, ICT and Laboratory

i. Using Community Resources- Bringing community to the class, Taking class to the community: Field visit

ii. Pooling of Learning Resources

  a. Learning Resources from Immediate Environment (Natural pH indicators, Soaps and detergents, Baking soda, Washing soda, Common salt, Fruits, Fibre, Pulleys, Projectiles, Lenses and Mirrors, Inter-conversion of one form of energy to other, Propagation of waves in Solid, Liquid and Gas)

  b. Improvisation of Apparatus

  c. Inexpensive Sources of Chemicals

iii. Science Kits
iv. Laboratory as a Learning Resource- Approaches to laboratory work, Planning and organising laboratory work, Working in group in the laboratory
v. Handling Hurdles in Utilization of Resources – Addressing underutilization of resources.
vi. ICT resources – e-Text books, Journals, Websites, Magazines, Different forms of ICT and its applications in science education- Audio-aids, Video-aids, Audio-Video aids,

educational T.V., Use of computer for simulations, internet and Open Educational Resources

9. Planning for Teaching-Learning of Physical Sciences

i. Planning - Annual Plan, Unit Plan and Period plan

ii. Identification and Organisation of Concepts for teaching -learning of science / Physics and Chemistry (Motion, Work and Energy, Matter and their Measurements, Carbon and its Compounds, Periodic Properties of Elements, Atomic Structure, Dual Nature of Matter and Radiation).

iii. Elements of a Physical Science Lesson- Learning objectives and key concepts, Pre-existing knowledge, Teaching-learning materials and involving learners in arranging them, Introduction, Presentation/ Development, Assessment: Acceptable evidences that show learners understand (i) Determining learning evidences (ii) Planning of the acceptable evidences of learning for assessment Extended learning/assignment.

iv. Making Groups-Why group learning? Facilitating formation of groups

v. Planning and Organising Activities in Physical Science

vi. Planning Laboratory Work – State commitments in organizing experiments Text-book orientation.

vii. Planning ICT Applications - Integrating ICT in teaching and learning process

10. **Physical Science Teacher**

i. Characteristics and role Science Teacher

ii. Professional Development

iii. Reflective Practices

iv. Science Teacher as a Researcher

11. Tools and Techniques of Assessment

i. Test, Examination, Measurement, Assessment and Evaluation.

ii. Continuous and Comprehensive Evaluation (CCE)- Educational assessment and educational evaluation, Performance-based assessment: A flexible way of school based assessment.

iii. Assessment Framework,

(a) Purpose of assessment

(b) Learning Indicators (LI);

- Types of indicators
- Illustrations of Learning Indicators,

- Assessment of activity

- Assessment of presentation
- Assessment of group work
- Assessment of collaborative learning

(c) Tools and Techniques of Assessment;

- Written test
- Project Work
- Field trips and field diary
- Laboratory work
- Interview/Oral test
- Journal writing.

(d) Recording and Reporting

- Measurement of students' achievements
- grading system
- Measurement of process skills
- Measurement of attitudes
- Portfolios

(e) Reflecting Process; Assessment as a reflecting process

iv. Assessment of Learning of Students with Special Needs.

Annexure XII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Botany

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

I. Nature, Scope and Meaning of Botany, Branches of Botany, Levels and Hierarchy of Classification, Five kingdom (Whittaker's) classification, Identification, Nomenclature, Species Concept, Kingdom Plantae, Diversity in living world.

II. **Monera & Protista**: Bacteria, Cyanobacteria, Slime moulds, Protozoans, Dinoflagellates - Ultrastructure cell wall, nutritional types, reproduction.

Viruses- Characters and ultra structure of virions and transmission of plant viruses: Microbes in medicine, agriculture and environment.

III. **Phycology** - Thallus organization cell ultra structure Reproduction (Vegetative, Asexual Sexual) criteria for classification of Algae - pigments, reserve food, flagella classification of Algae, Salient features of Chlorophyta, Phaeophyta and Rhodophyta. Algal blooms and toxic algae, algal Biofertilizers algae as food and feed, role of algae in industry.

IV. **Mycology** - General characters of Fungi: substrate relationship in fungi, cell ultra structure, unicellular and multicellular organization, composition of cell wall, nutrition (saprophytic, parasitic & symbiotic) reproduction (Vegetative, Asexual, Sexual) Heterothallism, heterokaryosis, parasexuality Molecular aspects in classification. General account of Mastigomycotina, Zygomycotina, Ascomycotina. Basidiomycotina, Deuteromycotina fungi in industry, medicine and as food fungal diseases in plants and humans Mycorrhizae fungi as bio-control agents.

V. Bryophyta, Pteridophyta and Gymnosperms.

Bryophyta - Morphology, structure, reproduction and life history distribution and classification of Marchantiales, Jungermaniales, Anthoceratales, Sphagnales. Funariales and Polytricales, economic and ecological importance

Pteridophyta - Morphology, anatomy and reproduction classification of Psilopsida Lycopsida, Sphenopsida and Pteropsida: Evolution of stele Heterospory and origin of seed habit, General account of fossil Pteridophytes

Gymnosperms - Introduction and classification. Structure and reproduction of Cycadales, Ginkgoales, Coniferales, Ephedrales, Welwitschiales and Gnetales, Different Life cycles of plants and alternation of generations.

VI. Morphology of Flowering Plants: Root, stem, leaf – structure and modifications, inflorescence - types, detailed structure of a typical flower and floral parts, types of fruit and the seed.

Reproduction in flowering plants: Types (Vegetative, Asexual and Sexual), Life cycle of a typical angiospermic plant, Sexual reproduction in flowering plants, pollination and fertilization

VII. Plant systematics - Taxonomy of Angiosperms

The species concept, Taxonomic hierarchy, different categories of taxon, Salient features of the international Code of Botanical nomenclature (ICBN), Taxonomical aids/tools: Herbarium, Floras, Botanical gardens, Museum, Key, histological, cytological, phytochemical, serological, biochemical and molecular techniques.

Different Systems of Classifications: Major systems of classifications and their merits and demerits. Detailed study of the following families: **Fabaceae, Solanaceae** and **Liliaceae**.

VIII. Plant Anatomy and Embryology :

Shoot and root development: Organization of the Shoot Apical Meristem (SAM), organization of Root Apical Meristem (RAM), tissue differentiation especially xylem and phloem, secretary ducts and laticifers, Phyllotaxy and leaf differentiation,

different types of plant tissues- Simple, Complex, Special tissues, Organisation vascular bundles and types, Anatomy of Root, Stem and Leaf.

Pollination and fertilization: Pollination types - Self and cross pollination, Floral characteristics pollination mechanisms and vectors; self-incompatibility and their contrivances.

Male gametophyte Structure of anthers, microsporogenesis, role of tapetum, pollen development, male sterility sperm dimorphism and hybrid seed production pollen, germination pollen tube growth

Female gametophyte. Ovule development, megasporogenesis, organization of the embryo sac, structure of the embryo sac and its cells. Double fertilization and triple fusion. Seed development and fruit growth Endosperm development during early, maturation and desiccation stages; embryogenesis, cell lineages during late embryo development storage proteins of endosperm and embryo, polyembryony, apomixes; embryo culture that maturation Dormancy Seed dormancy, overcoming seed dormancy, bud dormancy.

IX. Plant Resource Utilisation and Conservation

Origin and evolution- cultivation and uses of (i) Food forage and fodder crops (ii) forage crops (iii) medicinal and aromatic plants and (v) vegetable yielding crops. Ethanobotany- Scope and objectives of Ethanobotany, important fire-wood and timber yielding plants and non-wood forest products (NWFPs) such as bamboos, raw materials for paper-making, gums, tannins, dyes, resins (secondary metabolites) and different types of fruits. Role of plants in Medicine morphology, active principles and medicinal value of the following plants- *Andrographis, Asparagus, Phyllanthus, Gymnema.*

Strategies for conservation in situ conservation International efforts and Indian protected areas in India sanctuaries, national parks, biosphere reserves. wetlands mangroves and coral reefs for conservation of wild biodiversity. Strategies for conservation ex-situ conservation Principles and practices, botanical gardens, field gene banks, seed banks, in vitro repositories, cryobanks.

General account of the activities of different National and international institutes related to Biology: Botanical Survey of India (BSI). National Bureau of Plant Genetic Resources (NBPGR), Indian Council of Agricultural Research (ICAR), Council of

Scientific and industrial Research (CSIR) and the Department of Biotechnology (DBT), ICRISAT, CIMAP, IARI, ICMR, IRRI - conservation, non-formal conservation efforts

X. Plant Ecology

Climate, soil and vegetation patterns of the world, Life zones, major biomes and major vegetation and soil types of the world. Vegetation organization, Concepts of community, Population characters, interactions of species- positive and negative interactions of species, Ecological succession types, changes involved in succession, concept of climax, Biotic and abiotic interactions, habitat and niche, Allopatric and Sympatric speciation, Ecosystem organization, Structure and functions primary production, methods of measurement of primary production, energy dynamics (trophic organization energy flow Pathways, ecological efficiencies) food chains, food web and ecological pyramids, biogeochemical cycles of C,N,CO_2 & O_2 in terrestrial and aquatic ecosystems, Biodiversity Concept- speciation and extinction IUCN categories of distribution and global patterns, hot spots, endemism.

Air, water and soil pollution: sources, effects on plants, animals and ecosystems.

Climate change: Green house gases (CO, CO_2 CH_4, CFCs sources and their role). Ozone layer- Its role and causes and consequences of O_3- depletion, consequences of climate change (Global warming, sea level rise, UV radiation), Bio-geographical zones of India, Flora of Telangana- vegetation types.

XI. Cell Biology

Ultrastructure of a typical plant cell: structure and functions of cell organelles- Cell wall, Plasma membrane, Plasmodesmata, Protoplasm, Nucleus, Cytoplasm, Chloroplasts, Mitochondria, Endoplasmic Reticulum, Ribosomes, Golgi apparatus, Lysosomes, Vacuoles, microbodies.

Cell cycle and types: Mitosis and Meiosis- their significance

Cytogenetics

Chromatin organization Chromosome structure and Packaging of DNA molecular organization of centromeres and telomeres: nucleolus and ribosomal RNA (r-RNA) genes Euchromatin and Heterochromatin Karyotype, types of chromosomes Polytene,

Lampbrush B-chromosomes and sex chromosomes, molecular basis of chromosome pairing.

Mutations Spontaneous and induced mutations, physical and chemical mutagens, molecular basis of gene mutations, transposable elements in prokaryotes and eukaryotes, induced transposons, site-directed mutagenesis DNA damage and repair mechanisms, Structural and numerical alterations in chromosomes- Duplication, deficiency, inversion and translocation, autopolyploids, allopolyploids, evolution of major crop plants

Genetics of Prokaryotes and Eukaryotic organelles, genetic recombination in phage genetic transformation, conjugation and transduction in bacteria, Gene structure and expression Genetic fine structure cis-trans test Benzers experiment: introns and their significance RNA splicing regulation of gene expression in prokaryotes and eukaryotes

XII. **Plant Physiology**- Fundamentals of enzymology General aspects allosteric mechanism regulatory and active sites, isoenzymes, kinetics of enzymatic catalysis, Michaelis Menton equation and significance

Membrane transport and translocation of water and solutes Plant water relations mechanism of water transport through xylem, passive and active solute transport membrane transport proteins.

Photochemistry and photosynthesis : Photosynthetic pigments and light harvesting complexes, photolysis of water, mechanisms of electron and proton transport, carbon assimilation- Calvin cycle (C_3-cycle), C_4-cycle, CAM pathway, Photorespiration and its significance, biosynthesis of starch and sucrose.

Respiration and lipid metabolism: Aerobic and anaerobic, Glycolysis, TCA cycle, Electron Transport System and ATP synthesis, Fermentation, Pentose Phosphate Pathway, Glyoxylate Cycle, alternative oxidase system structure and function of lipids, fatty acid biosynthesis, synthesis of membrane lipids, Structural lipids and storage lipids and the catabolism

Nitrogen fixation and metabolism: Biological Nitrogen fixation, nodule formation and nod factors, mechanism of nitrate uptake and reduction, Ammonium assimilation, Photobiology Photochromes and cryptochromes, photophysiology of light induce responses.

Plant growth regulators: Physiological effects of Auxins, Gibberellins, Cytokinins, Ethylene, Abscisic Acid (ABA), The flowering process, Photoperiodism, endogenous clock and its regulation floral induction and development, Vernalization

XIII. Biotechnology and Genetic Engineering: Plant Biotechnology Principles, scope and applications, Plant cell and tissue culture General introduction scope, cellular differentiation, and Organogenesis and adventives embryogenesis Morphogenesis, somatic embryogenesis, Somatic hybridization Protoplast isolation, fusion and culture. Applications of plant tissue culture Clonal propagation, artificial seed, production of hybrids and soma clones, production of secondary metabolites, Tissue culture, Single Cell Proteins (SCP)

Genetic Engineering: Cryopreservation and germplasm storage, Recombinant DNA technology (r-DNA technology) Gene cloning principles and techniques, genomic/ c-DNA, vectors, DNA synthesis and sequencing, polymerase chain reaction. DNA-fingerprinting and DNA markers, transgenic plants. Methods of gene transfer *Agrobacterium* medicated, chloroplast transformation intellectual property rights, Role microbes in Human welfare- production of antibiotics & fermentation products at industrial level, Bio-fuels, Bio-gas, Bio-fertilizers, Bio- pesticides, sewage treatment, Biological control, ecological risks, challenges and ethical concerns.

Part V - Pedagogy

Unit-I - Nature of Science:

The Nature and scope of Science, The History and Development of Science, including the eminent contributions of important Biologists – Aristotle, William Harvey, Lamarck, Charles Darwin, J.C. Bose, M.S. Swaminathan, Birbal Sahni, Elizabeth Blackburn, Recent advancement in Biological Science, Biological Science in Everyday Life.

Unit-II - Aims of Learning Biological Science:

Values, Aims and Objectives of Teaching Biological Science, Knowledge and understanding through Science, Nurturing Process, Skills of Science, Development of Scientific Attitude and Scientific Temper, Respect for Evidence, Open Mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism, Objectivity, Perseverance, Role of Science Teacher, Relating Biological Science Education to Physical Science and Social Environment, Technology, Society and Environment.

Unit-III - Learning objectives of Biological science:

Meaning of Learning objectives, Developing of Learning objectives and features well developed learning objectives, Bloom's Taxonomy of Educational objectives, specific / behavioral / instructional objectives, Anderson and Krathwohl's Taxonomy, Academic Standards in Biological Science.

Unit-IV - Biological Sciences Curriculum:

Historical of Development of Curriculum Framework, Curriculum Framework - Curriculum and Syllabus, Principles of Curriculum construction in Biological Science, Organization of subject matter – different approaches - correlated, integrated, topical, concentric, unit and chronological. Recommendations of NCF-2005 and TSCF -2011 on Science Curriculum National Focus Group Position Paper on Science and State Positon Paper (2011) on Science, Constructivist approach in Biological Science, Trends of Science Curriculum / Syllabus, moving from Textbook to Teaching-Learning Materials, going beyond the Textbook, Print Resources: Textbooks, Popular Science Books, Journals and Magazines, Edger Dale's Cone of Experiences-Using the Cone of Experience, Teacher as Curriculum Developer.

Unit-V - Approaches and Methods of teaching Biological Science:

Lecture method, Lecture cum Demonstration method, Historical method, Heuristic method, Project method, Laboratory method, Problem Solving method, Scientific method, Microteaching, Team teaching, Inductive and Deductive Approaches, Constructivist Approach- 5 E Learning Model, Collaborative Learning Approach (CLA), Problem Solving Approach (PSA), Concept Mapping, Experiential Learning, Multimedia approach in teaching learning process and Programmed learning, Computer Assistant Instruction (CAI) and Computer Aided Learning (CAL).

Unit-VI - Planning for Effective Instruction in Biological Science:

Year plan, Unit plan, Lesson plan, Learning experiences, Characteristics, Classification, Source and relevance, Teaching Learning Material (TLM) – Characteristics and importance, Principles to be followed in preparation and usage, Classification, Types, Hardware and Software in TLM, Planning ICT applications.

Unit-VII – Community and Learning Resources

Using Community Resources - Bringing community to the class, taking class to the community: Field visit, Pooling of Learning Resources, Teaching Learning Material and Improvisation of Apparatus, Science Kits, Laboratory as a Learning Resource, different forms of ICT and its applications in Biological Science Education – Audio aids, Video aids, Educational TV, Use of computer for simulation, internet and Open Learning Resources.

Unit-VIII – Assessment and Evaluation in Biological Sciences:

Test, Examination, Measurement, Assessment and Evaluation, Continuous and Comprehensive Evaluation (CCE), Performance Based Assessment, Assessment Framework - Purpose of assessment, Learning Indicators, Tools and Techniques of Assessment - Written test, Project work, Field trips and field diary, Laboratory work, Interview/Oral test, Journal writing, Concept mapping, Use of Rubrics, Recording and Reporting of the project work, Technical and Academic Guidance, Measurement of students' achievements, Grading system, Measurement of process skills, Portfolio: Its role in evaluating students' performance, Assessment as a reflecting process, Assessment of Learning of Students with special needs.

Unit-IX - Pedagogical Shift in Biological Science:

Pedagogical Shift: Science as Fixed Body of Knowledge to the Process of Constructing, Knowledge, Learners, learning and teachers, Scientific method to Science as inquiry, Inclusion- Science curriculum, Diversity in class approaches, Information and Communication Technology (ICT), Continues Professional Development (CPD): Role of reflective practices in professional development of biological teachers, Content-cum-methodology: Meaning, Concept & Nature.

Unit-X – Child Development

Psychology of teaching and learning of Biological Science, Learning disabilities – Difficulties in education of Exceptional and disable children.

Annexure XIII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT – Zoology

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. General Concepts

Nature, Scope and Meaning of Zoology, Branches of Zoology, Levels and Hierarchy of Classification, Nomenclature, Species Concept, Kingdom Animalia, Biodiversity, Levels of structural organization Unicellular, Multi cellular and Colonial forms, Prokaryotic and eukaryotic cells, Levels of organization of Tissues, Diploblastic, Triploblastic organization, Importance of symmetry, Levels of Organs & Systems, Coelom: Acoelomata, Pseudocoelomata, Protostomia and Deuterostomia, Animal tissues – Histology of mammalian tissues and organs – Epithelia, Connective, blood, bone. Cartilage skin, stomach, intestine liver, pancreas, kidney testis and ovary.

2. Non-Chordata

General characters and classification of vertebrates up to class level, Protozoa - Locomotion Nutrition and Reproduction in Protozoa, Protozoan diseases of man - Amoebiasis Malaria. Trypanosomiasis, Porifera - Canal system in Porifera, Skeleton in Porifera, Reproduction in sponges, Coelenterata – Polymorphism, Metagenesis, Coral formation, Obelia, Helminthes - Common Helminthic parasites of Man - Fasciola hepatica Schistosoma, Taenia solium, Echinococus granulesus, Ascaris, Ancylostoma, Trichinella their life cycles Pathogenecity and clinical significance, Parasitic adaptations in Helminths, Annelida - Excretory system in Annelida, Coelom formation, Coelom and coelom ducts, Metamerism, *Peripatus*, Arthropoda - Mouthparts of insects, Ommatidium, Useful and harmful insects, Metamorphosis in insects, *Periplanata americana* – type study. Crustacean

larvae, Mollusca – General Characters and classification, Echinodermata – Echinoderm larvae, Water vascular system.

3. Chordata:

General characters and classification of chordates up to class level. Origin of chordates. Phylogeny and Affinities of Hemichordata, Retrogressive metamorphosis, Vertebrate integument and its derivatives. Comparative account of Digestive Respiratory, Circulatory, Excretory and Reproductive systems of vertebrates, Pisciculture in India Common edible fishes, Origin and evolution of Amphibia, Neoteny or Paedogenesis, Poisonous and non-poisonous snakes – identification; Snake bite and its effect, Blood and circulation Blood corpuscles Haemopoiesis. Plasma function Blood groups, Haemoglobin Haemostasis.

4**. Cell Biology**

Ultra structure of animal cell, Prokaryotic and Eukaryotic cell – differences, Structure and function of cell organelles - Plasma membrane, Mitochondria, Golgi bodies, Lysosomes, Endoplasmic Reticulum, Ribosomes. Peroxisomes, Vacuoles and Nucleus, Chromosome structure & functions, Heterochromatin, Euchromatin, DNA & RNA, Cell division – mitosis and meiosis, Cell cycle & its regulation.

5. Genetics:

Mendel’s law of inheritance, Heredity and variations, Gene mapping methods – linkage – complete and incomplete linkage, Linkage maps, somatic cell hybrids, Crossing ever Types Somatic or Mitotic crossing over and Germinal or crossing ever, Mutations - Types (Somatic or mitotic crossing over and germinal or meiotic crossing over), Recombinant DNA technology Transgenesis & Cloning, Protein synthesis – Genetic code Initiation, elongation and Termination, Regulation of gene expression – Lac operon, Chromosomal aberrations (Deletion Duplication version and Translocation) ploidy and their genetic implications, Chromosomal abnormalities - Down's syndrome Trisomy-13, 18) Sex anamolies, Turner's syndrome, Kinfelter's syndrome, Human genetics Human Karyotyping. Genetic disorders due to mutant gene tuntington's chorea) Sickle-cell anaemia (SCA) Inborn errors of metabolism Phenylketonuria, Alkaptonuris, Human genetics Human karyotyping. Genetic disorders due mutant genes Huntington's chorea), Colour blindness, Sickle-cell anaemia (SCA) Inborn errors of metabolism, Phenylketonuria, Alkaptonuria System and Cell physiology

6. Body fluids and circulation

Blood and circulation, Blood corpuscles, Lymphatic system, clotting of blood, Circulating pathways, Human Cardiovascular system, Myogenic heart, Cardiac cycle, Types of circulations, Respiratory system: Transport of gases, Exchange of gases, Nervous system: Human Neural system, CNS, PNS, SNS, ANS, Reflex Action and Reflex Arc, Sensory Reception and Processing – Sense organs Eye, Ear, Nose, Tongue and Skin, Muscle-Ultra structure of skeletal muscle Mechanism of muscle contraction, Excretory system Structure & function of mammalian Kidney and Micturition, Kidney and Nephron, Micturition, Osmoregulation in Aquatic & Terrestrial animals, Osmoregulation: Osmoregulation in Aquatic & Terrestrial animals, Digestive system Digestive System Digestion, absorption, assimilation and egestion Endocrinology and Reproduction Endocrine glands, Types of hormones & Mechanism of hormonal action, Hormonal regulation, Endocrinology and Reproduction Endocrine glands Types of hormones & Mechanism of hormonal action. Hormonal regulation of reproduction in Humans, Reproductive health, Organic compounds - Carbohydrates, Proteins and Lipids, Glycolysis (EMP) Kreb's cycle (TCA cycle) Electron transport system (Oxidative phosphorylation) Pentose phosphate pathway Gluconeogenesis.

7. Organic Evolution:

Origin of Life, Chemical, Biological evolution and Evidences for biological evolution (paleontological, comparative anatomical, embryological, atavistic, connecting links, and molecular evidences), Geological time scale, Theories of evolution: Lamarckism, Darwin's theory of Evolution Natural Selection, Mutation Theory of Hugo De-Vries. Modern synthetic theory Evolution Hardy Weinberg Law, Types of Natural Selection: Adaptive radiation, Human evolution; Speciation Allopatric, sympatric. Reproductive isolation of life Theories and Evidences of organic evolution the modern synthetic theory, Mechanism of evolution, Population genetics (Gene pool, Gene flow, Genetic drift, Genetic load, Gene frequency), Hardy Weinberg's law, Isolation and speciation

8. Developmental Biology

Structure of male and female reproductive systems in human, Spermatogenesis and Oogenesis, structure of sperm, Menstrual cycle, Fertilization Cleavage Gastrulation Formation of germ layers Parthenogenesis, formation and Function of Foetal membranes, Types of placenta, reproductive health, birth control, Amniocentesis Infertility and Assisted Reproductive Technology (ART).

9. Biosphere – Ecology

What is ecology and its importance, organisms and environment, Elementary aspects, population interaction, components, Biogeochemical cycles (Carbon Nitrogen and

Phosphorous), Influence of environmental factors on animals, Ecosystem – components and types, Energy flow in Ecosystem. Food chains, Food web, Ecological pyramids and their types, Animal Associations- Neutralism, Mutualism, Symbiosis Commensalism, Parasitism, Predation and Competition, Ecological succession – Hydrosere, Xerosere and Mesosere, Environmental pollution Air, water, soil, thermal, causes, Effects and prevention, Green house effect, ozone depletion, Wildlife in India Conservation, Chipco movement, natural resources management, renewable and non-renewable energy resources, Biodiversity Economic significance Conservation, Hot spots of India.

10. Immunology

Cells of the immune system Lymphoid cells. Mona nuclear cells. Granulocytic cells Mast cells, Organs of the immune system. Primary and Secondary lymphoid organs. Lymphatic system, Antigens – Antigenic determinants or Epitopes Immunogenicity, Humoral immunity immunoglobulin (Fine structure of immunoglobulin and Immunoglobulin classes) , Natural killer cells, Innate (Non-specific immunity) Anatomical barriers, Phagocytosis, Natural killer cells (NK cells) Interferons, Cell mediated immunity Mechanism of cell mediated immunity,

11. Applied Biology:

Animal Husbandry: Apiculture. Pisciculture, Sericulture in India Poultry management Dairy management: Animal breeding: Bio-medical Technology: Diagnostic Imaging (X-ray, CT scan, MRI), ECG, EEG; Biotechnology its importance for human welfare Human insulin and vaccine production; Gene Therapy: Transgenic animals; ELISA vaccines, MABS, Cancer biology, Stem Cells, DNA finger printing, Human Genome Project (HGP) and its applications.

Part V - Pedagogy

1. **Nature of Science:**

The Nature and scope of Science, The History and Development of Science, including the eminent contributions of important Biologists – Aristotle, William Harvey, Lamarck, Charles Darwin, J.C. Bose, M.S. Swaminathan, Birbal Sahni, Elizabeth Blackburn, Recent advancement in Biological Science, Biological Science in Everyday Life.

2. **Aims of Learning Biological Science:**

Values, Aims and Objectives of Teaching Biological Science, Knowledge and understanding through Science, Nurturing Process, Skills of Science, Development of Scientific Attitude and Scientific Temper, Respect for Evidence, Open Mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism,

Objectivity, Perseverance, Role of Science Teacher, Relating Biological Science Education to Physical Science and Social Environment, Technology, Society and Environment.

3. **Learning objectives of Biological science:**

Meaning of Learning objectives, Developing of Learning objectives and features well developed learning objectives, Bloom's Taxonomy of Educational objectives, specific / behavioral / instructional objectives, Anderson and Krathwohl's Taxonomy, Academic Standards in Biological Science.

4. **Biological Sciences Curriculum:**

Historical of Development of Curriculum Framework, Curriculum Framework - Curriculum and Syllabus, Principles of Curriculum construction in Biological Science, Organization of subject matter – different approaches - correlated, integrated, topical, concentric, unit and chronological. Recommendations of NCF-2005 and TSCF -2011 on Science Curriculum National Focus Group Position Paper on Science and State Positon Paper (2011) on Science, Constructivist approach in Biological Science, Trends of Science Curriculum / Syllabus, Moving from Textbook to Teaching-Learning Materials, going beyond the Textbook, Print Resources: Textbooks, Popular Science Books, Journals and Magazines, Edger Dale's Cone of Experiences-Using the Cone of Experience, Teacher as Curriculum Developer.

5. **Approaches and Methods of teaching Biological Science:**

Lecture method, Lecture cum Demonstration method, Historical method, Heuristic method, Project method, Laboratory method, Problem Solving method, Scientific method, Microteaching, Team teaching, Inductive and Deductive Approaches, Constructivist Approach- 5 E Learning Model, Collaborative Learning Approach (CLA), Problem Solving Approach (PSA), Concept Mapping, Experiential Learning, Multimedia approach in teaching learning process and Programmed learning, Computer Assistant Instruction (CAI) and Computer Aided Learning (CAL).

6. **Planning for Effective Instruction in Biological Science:**

Year plan, Unit plan, Lesson plan, Learning experiences, Characteristics, Classification, Source and relevance, Teaching Learning Material (TLM) – Characteristics and importance, Principles to be followed in preparation and usage, Classification, Types, Hardware and Software in TLM, Planning ICT applications.

7. **Community and Learning Resources**

Using Community Resources - Bringing community to the class, taking class to the community: Field visit, Pooling of Learning Resources, Teaching Learning Material and Improvisation of Apparatus, Science Kits, Laboratory as a Learning Resource, different forms of ICT and its applications in Biological Science Education – Audio aids, Video aids, Educational TV, Use of computer for simulation, internet and Open Learning Resources.

8. Assessment and Evaluation in Biological Sciences:

Test, Examination, Measurement, Assessment and Evaluation, Continuous and Comprehensive Evaluation (CCE), Performance Based Assessment, Assessment Framework - Purpose of assessment, Learning Indicators, Tools and Techniques of Assessment - Written test, Project work, Field trips and field diary, Laboratory work, Interview/Oral test, Journal writing, Concept mapping, Use of Rubrics, Recording and Reporting of the project work, Technical and Academic Guidance, Measurement of students' achievements, Grading system, Measurement of process skills, Portfolio: Its role in evaluating students' performance, Assessment as a reflecting process, Assessment of Learning of Students with special needs.

9. Pedagogical Shift in Biological Science:

Pedagogical Shift: Science as Fixed Body of Knowledge to the Process of Constructing, Knowledge, Learners, learning and teachers, Scientific method to Science as inquiry, Inclusion- Science curriculum, Diversity in class approaches, Information and Communication Technology (ICT), Continues Professional Development (CPD): Role of reflective practices in professional development of biological teachers, Content-cum-methodology: Meaning, Concept & Nature.

10. Child Development

Psychology of teaching and learning of Biological Science, Learning disabilities – Difficulties in education of Exceptional and disable children.

Annexure XIV

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs

PGCRT - URDU

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II - Basic Proficiency in English

1. School Level English Grammar:

Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. History of Education: Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission

(1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. Educational Concerns in Contemporary India:

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; Democracy and Education: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; Economics of Education: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; Population Education: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; Inclusive Education: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness - Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; Liberalization, Privatization and Globalization; Value Education; Initiatives in Education: Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights, Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part - IV - Content

I. زبان کی مختلف شکلیں اور حیثیتیں:

شکلیں: اشاروں کی زبان، تحریری زبان، علامتوں کی زبان

حیثیتیں: رابطہ کی زبان، مادری زبان، دوسری زبان، سرکاری زبان، قومی زبان

زبان کے مسائل اور پالیسیاں، قومی اور ریاستی نصاب کا فریم ورک

II. ادیبوں، شاعروں کی سوانح حیات، ادبی کارنامے اور ان کے اسلوب اور کرداروں کا جائزہ

(جماعت ششم تا انٹرمیڈیٹ کے درسی کتب میں دیئے گئے شعراء اور مصنّفین)

III. اصناف ادب کا تفصیلی مطالعہ

حصہ نظم: حمد، نعت، منقبت، قصیدہ، موضوعاتی نظم، غزل، مثنوی، رباعی، مرثیہ، گیت، دوہے، ماہیے۔

حصہ نثر: مضمون نگاری، داستان، ناول، افسانہ، ڈرامہ، خطوط نگاری، انشائیہ (معلوماتی، طنزیہ، مزاحیہ)، خاکہ نگاری، سوانح نگاری (آپ بیتی)

IV. اردو زبان و ادب کی ترقی کے مختلف ادوار

V. اُردو کے اسالیب بیان (مختلف شعراء اور مصنّفین کا طرز اسلوب)

VI. اُردو زبان کے عناصر

علم ہجا، علم صرف، علم نحو، علم بیان، علم الاعداد:

الفاظ کے معنی، مفرد اور مرکب الفاظ، جمع، اضداد، سابقے، لاحقے، جنس، مونث، مذکر، جنس حقیقی، جنس غیر حقیقی، محاورے، ضرب المثل، رموز و اوقاف، صنائع و بدائع، تلفظ، مخارج، اعراب۔

VII. اُردو زبان پر دیگر زبانوں کے اثرات (پنجابی، ہندی، فارسی، انگریزی)

VIII. ترجمہ اور تکنیک

IX. ان دیکھا متن (Comprehension)

(1) نظم (2) نثر

Part - V - Pedagogy

I. اُردو زبان کی نوعیت، اس کا تاریخی اور ارتقائی عمل

II. اُردو زبان کے تدریسی مقاصد اور مہارتیں

اُردو زبان کے تعلیمی و تدریسی مقاصد

زبان کی مہارتیں: بنیادی مہارت، سننا، بولنا، پڑھنا، لکھنا

III. تدریسی زبان اُردو کے طریقے، تدریسی تکنیک اور اردو معلم

تدریس نثر، تدریس نظم، تدریس قواعد، اردو معلم کے خصوصیات

IV. تدریس اُردو اور منصوبہ بندی:

سالانہ، اکائی اور سبق واری منصوبہ بندی (نثر، نظم، قواعد اور سرسری مطالعہ)

V. اُردو نصاب کی تدوین:

نصاب کی تدوین کے اصول، درسی کتاب کی خصوصیات اور تنقیدی جائزہ

VI. نصابی اور ہمہ نصابی مشاغل:

اُردو کے ہمہ نصابی اور زائد ہمہ نصابی مشاغل کا انعقاد و اہمیت

VII. تدریسی و اکتسابی وسائل: تدریسی آلات، اقسام، اہمیت و تیاری

اُردو زبان کی لیبارٹری، زبان کی تدریس و اکتساب میں ICT کا استعمال

VIII. اندازہ قدر:

امتحان کی اہمیت و ضرورت، مسلسل جامع جانچ (CCE)، جانچ کے آلات اور تکنیکس، تحصیلی آزمائش، SAT کی تیاری

IX. اکتسابی معذوری اور عدم اہلیتیں/ استثنائی بچوں کی تعلیم اور درپیش مشکلات/ زبان میں معذور بچے

X. اُردو کی ترقی اور فروغ میں معاون ادارے

Annexure XV

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of PGCRTs in KGBVs
PGCRT - Nursing

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Content

1. Anatomy and physiology
2. Nutrition
3. Biochemistry
4. Nursing foundation
5. Psychology
6. Sociology
7. Pharmacology
8. Pathology and genetics
9. Medical surgical nursing (adult including geriatrics)
10. Community health nursing
11. Medical surgical nursing (EYE, ENT, neurological disorder, disorders of female reproductive system, burns, reconstructive and cosmetic surgery, oncology, emergency, disaster management, critical care, occupational, industrial disorders
12. Child health nursing
13. Mental health nursing
14. Midwifery and obstetrical nursing - I
15. Midwifery and obstetrical nursing -II
16. Nursing research and statistics
17. Management of nursing services.

Part IV – Pedagogy

1. Communication process
2. Interpersonal relations
3. Human relations
4. Guidance and counseling.
5. Principles of education
6. Teaching and learning process
7. Methods of teaching
8. Educational media
9. Assessment including classroom, clinical, assessment.

10. Information, education and communication for health (IEC)
11. In-service education including principles of adult learning
12. Management of nursing educational institutes including regulatory bodies, accreditation, affiliation, faculty and staff selection, job description, placement, performance appraisal.
13. Curriculum
14. Clinical facilities
15. Institutional records.

Annexure XVI

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of Special Officers in KGBVs and URSs

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management,

Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part-IV: Pedagogy across the Curriculum

1. The Nature of Liberal Disciplines of Knowledge and its Historical Development including the contributions of important thinkers across the disciplines. Importance of Cognitive and Non-Cognitive areas in School Curriculum.
2. Values, Aims and Objectives of Teaching Liberal and Creative Disciplines of Knowledge including Vocational subjects, Crafts, Performance and Fine Arts etc.
3. Child Development**:** Psychology of Teaching and Learning, Disciplines of Knowledge
4. Curriculum: Construction, Organization and Development
5. Measurement and Evaluation: Continuous and Comprehensive Evaluation (CCE), Formative and Summative Assessments, Diagnostic and Achievement Tests, Tools and Techniques of Evaluation, Distinction between Assessment for learning and Assessment of learning , School Based Assessment
6. Learning Disabilities/Difficulties and Education of Exceptionally Challenged Children
7. Disciplines of Knowledge and Everyday Life, Non-formal Education in Schools
8. Pedagogical Concerns, "Teaching and Its relationship with Learning and Learner", Learners in Contexts, Situating Learner in the Socio- Political and Cultural Context, Managing Behavioural Problems, Guidance & Counselling, Punishment and its legal implications, Rights of a Child, Time Management, Understanding Teaching and Learning in the context of NCF-2005, and Right to Education Act, 2009, Approaches, Methods and Techniques of Teaching Disciplines of Knowledge, Planning for Effective Instruction: Different Plans and Designing Learning Experiences, Learning Resources:

Teacher, Student, Peer Group, Community, Teaching Learning Materials, Labs, Teaching Aids, Textbooks, ICT etc.

Part V: Child Development

Growth, Development and Maturation: Concept, differences, factors influencing growth and development, Physical, Sensory, Motor, Linguistic, Cognitive, Intellectual, Behavioural, Social, Constructive, Socio-cultural, Emotional and Psychoanalytic theories of Child development. Learning theories and their implications - Trial and Error, Classical Conditioning, Operant Conditioning, Gestalt Learning, Observational Learning, Self-learning and Transfer of Learning, Memory, Forgetting, Concept Formation, Designing Child friendly Learning Environment, Role of Family, Child Rearing practices and Community in Child Development.

Individual Differences: Intelligence: Concepts, Theories and Assessment; Aptitude, Creativity, Attitude, Interests

Personality: Key Concepts, Theories, Assessment, Adjustment - Defence Mechanisms, Conflict, Frustration and Stress

Part VI: School Management and Administration

1. **School Organization:** Institutional Planning, Principal as a Leader, Teacher Quality Linkages and Interface with other Institutions and Vice versa Student Quality, Organization of Teaching, Co-Curricular Activities, Office Management, Resources required for a Good School, Organizational Climate, Evaluation, Job satisfaction of the staff.
2. **Administration:** Administrative powers of the Principal, Safety, Security & Protection of students and schools, Office Management, maintenance of Records and Registers.
3. **Finance:** Fundamental & Supplementary Rules; Travelling Allowance Rules; Leave Travel Concession Rules; Medical Attendance Rules; Salary and Pension Rules; General Financial Rules; Purchase Procedures.

Annexure – XVII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs and URSs
CRT - Mathematics

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management,

Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. **Number System:** Natural Numbers, Whole Numbers, Integers, Rational Numbers, Real Numbers: Fundamental operations and their properties; HCF and LCM; prime factorization and division method; Fractions and Decimals; divisibility tests; Representation of decimal numbers (terminating, non terminating but recurring) in rational form; Square numbers, cube numbers, Square roots, Cubes, Cube roots; Pythagorean triplets; Concept of a Surd; Rationalization of a monomial, binomial surds of second order; Euclid division lemma; Fundamental Theorem of Arithmetic; Introduction of logarithms; Conversion of a number in exponential form to a logarithm tic form; Properties and laws of logarithms; Sets and their representations; Types of sets; cardinality of sets; Venn diagrams; Sets, subsets - Disjoint sets; Basic operations on sets.

2. **Arithmetic:** Ratio and Proportion - Unitary method - Direct and indirect proportion; Compound ratio; Percentage - Converting fractions and decimals into percentage and vice-versa; Profit and Loss – Discount – Simple interest – Compound interest; Time & work; Time & Distance.

3. **Algebra**: Exponents and powers-Laws; Algebraic Expressions - fundamental operations -Identities - Factorization; Simple equations-Solving linear equations ; Polynomials - Constant, linear, quadratic, cubic polynomials; monomials, binomials, trinomials - Zero / roots of a polynomial / equation - Division of polynomials - Remainder Theorem - Factor Theorem; Linear Equations in Two Variables – Solutions - Graphs - division algorithm and simple problems; Pair of Linear Equations in Two Variables – Solutions; Quadratic Equations – Finding the roots - Relationship between discriminant and nature of roots; Progressions – Arithmetic Progression - n^{th} term and sum of first "n" terms – Geometric Progression - n^{th} term.

4. **Trigonometry:** Trigonometric ratios – Values; Relationship between the ratios; Trigonometric Identities; ratios of complementary angles; Applications of trigonometry.

5. **Coordinate geometry:** Cartesian system; graphs of linear equations; Distance between two points; Section formula (internal division of a line segment in the ratio m:n); Area of a triangle on coordinate plane; Slope of a line joining two points.

6. **Geometry:** Basic geometrical concepts; 3D, 2D shapes – Nets – drawing - representing; Types of Quadrilaterals and their properties – constructions – related theorems; Circle and its components – related theorems; Lines and Angles - Perpendicular bisector and angular bisector - Pairs of angles - Properties of parallel lines with transversal - related Theorems; Symmetry - lines of symmetry - rotational and reflective symmetry - Point of symmetry – Dilations - Tessellations; Triangles – types – properties - Median and Altitude of a triangle, Centriod – Criteria of congruence – Criteria of similar triangles - constructions - related theorems; Euclid's Geometry – axioms – postulates; Tangents and secants to a circle – related theorems.

7. **Mensuration -** Area and Perimeter -Quadrilaterals –Triangle; Area of rectangular paths; Area of the circle - circular paths (Ring) and area of sector, Circumference of Circle; TSA & CSA of cube, cuboid, right circular cylinder, cone, sphere, hemi sphere; Volume of cube, cuboid, right circular cylinder, cone, sphere, hemi sphere; Volume and capacity; Relationship between surface areas of any two comparable solids; Relationship between volumes of any two comparable solids; surface areas and volumes of combinations of any of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders / cones; Problems involving converting one type of metallic solid into another and other mixed problems(Problems with combination of not more than two different solids be taken).

8. **Statistics and Probability –** Data handling-Data- Collection and organisation of data; Pictograph and Bar graphs: Simple pie charts; Measures of central tendency-Mean, Median and Mode of ungrouped and grouped data-Specific usages; Frequency distribution for ungrouped and grouped data- Preparation of frequency distribution table; Frequency graphs (histogram for equal and unequal class intervals, frequency polygon, frequency curve, cumulative frequency curves) and related problems; Usage of different values and central tendencies through Ogives; Probability- Basic Concepts and definition of Probability; Outcomes and chances; Events-Mutually exclusive, possible and impossible, Complementary; Applications of Probability.

Part V - Pedagogy

1. Nature and Scope of Mathematics:

i. Mathematics: Meaning and Definition

ii. Nature of Mathematics: Utility, Originality, Abstractness, Truthfulness, logical Conclusions, Nature of Verification, Aesthetics, Co- existence of Provision, Inclusive and Deductive Reasoning, and correlation, Identifying Mathematical Patterns

iii. Scope of Mathematics

a. Use of Mathematics in daily life.

b. Correlation with other subjects/ disciplines

2. History of Mathematics and Contributions of Mathematicians: Pythagoras, Euclid, Baudhayana, Aryabhatta, Brahmagupta, Bhaskaracharya-ll, Srinivasa Ramanujan, P.C.Mahalanobis, Hypatia.

3. Aims and Objectives of Learning Mathematics

i. Aims and Values

a. Aims of Learning Mathematics

b. Knowledge and Understanding through Mathematics

c. Relating Mathematics Education to Natural and Social Environment, Technology and Society, Gender & Mathematics, Mathematics for Inclusion.

d. Imbibing the Values through Mathematics Teaching

ii. Objectives

a. Meaning of Learning Objectives

b. Developing Learning Objectives, Features of Learning Objectives - Blooms Taxonomy

c. Anderson and Krathwohl's Taxonomy.

d. Learning Objectives: Remembering, Understanding, Applying, Analyzing, Evaluating and Creating

e. Illustrations on Learning Objectives for Upper Primary, Secondary and Higher Secondary Stages

f. Learning Objectives in the Constructivist Perspective

g. Academic Standards in Mathematics 8. Learning

h. Learning outcomes

i. Professional growth of teacher

4. **How children learn mathematics:** Psychological implications of learning mathematics - Jean Piaget, Jerome Bruner, Lev Vygotsky

5. **Pedagogical Shift in Mathematics**

   i. Pedagogical Shift:

      a. Mathematics as Fixed Body of Knowledge to the Process of Constructing Knowledge

      b. Nature of Mathematics

      c. Approaches

      d. Assessment

      e. Learner, Learning and Teacher

      f. Planning Teaching-Learning Experiences-Planning Teaching-Learning: Before shift and After shift

      g. Mathematics Curriculum, Diversity in Classroom, Information and Communication Technology (ICT)

   ii. Democratizing Mathematics Learning: Critical Pedagogy and Role of Teachers

   iii. Content-Cum-Methodology (CCM): Meaning, Concept & Nature, Steps to Content- cum-Methodology, Steps to Pedagogical Analysis, Content and Teaching Skills

6. **School Curriculum in Mathematics**

   i. Curriculum Framework, Curriculum and Syllabus from Subject-Centred to Behaviourist to Constructivist Approach.

   ii. Mathematics Curriculum Development and Organisation - Principles and Approaches

   iii. Recommendations of NCF-2005 and APSCF-2011 on Mathematics Curriculum

   iv. National Focus Group Position Paper on Mathematics and State Position Paper (2011) on Mathematics

   v. Moving from Textbook to Teaching-Learning Materials, Going beyond the Textbook

   vi. Print Resources- Textbooks, Popular Mathematics Book, Journals and Magazines

   vii. Dale's Cone of Experience- Using the Cone of Experience

   viii. Teacher as Curriculum Developer- Localized Curriculum, Place for Artisans.

   ix. Knowledge Systems in Curriculum, Local Innovators and Innovative practices in Mathematics.

7. **Approaches, Strategies and Methods of Teaching and Learning Mathematics**

   i. Approaches and Strategies for Learning Mathematics-Difference between Approach and Strategy, Different Approaches and Strategies of Learning,

Selecting appropriate Approach and Strategy, Essential Components of all approaches and strategies.

ii. Constructivist Approach of Teaching Mathematics and Strategies

iii. 5 E Learning Model

iv. Collaborative Learning Approach (CLA)- Ensuring Meaningful Learning, through CLA - Ways of Applying - Steps & Limitations

v. Problem Solving Approach (PSA)- Steps & Teacher's role

vi. Concept Mapping- Phases of the Concept Mapping and its uses

vii. Experiential Learning- Abilities of an Experiential Learner.

viii. Methods of Teaching mathematics: Activity based, Inductive – Deductive, Analytic-synthetic, Project, Heuristic, project, Laboratory methods

8. Learning Resources

i. Learning Resources from Immediate Environment

ii. Pooling of Learning Resources from various sources

iii. Mathematics Kits

iv. Mathematics club

v. Mathematics Lab

9. Planning for Teaching-Learning of Mathematics

i. Need of Planning for Teaching-Learning.

ii. Planning Annual Plan, Unit Plan, Lesson Plan /Period plan.

iii. Identification and Organisation of Concepts for Teaching - Learning of Mathematics

iv. Elements of a Mathematics Lesson- Learning Objectives and Key Concepts, Pre-existing Knowledge, Teaching-Learning Materials; Introduction, Presentation / Development & Assessment.

Assessment: Acceptable evidences that show learners understand

a. Determining Learning Evidences

b. Planning of the acceptable Evidences of Learning for Assessment; Extended Learning/Assignment

v. Planning and Organizing Activities in Mathematics, Laboratory Work and Organizing Laboratory Work and ICT Applications in Teaching Learning of Mathematics.

10. Tools and Techniques of Assessment for Learning Mathematics

i. Test, Examination, Measurement, Assessment and Evaluation

ii. Continuous and Comprehensive Evaluation (CCE)- Educational Assessment and Educational Evaluation, Performance-based Assessment: A flexible way of School Based Assessment

iii. Formative and Summative Assessment -

iv. Assessment Framework,

a Purpose of Assessment,

b Learning Indicators (LI) - Types of Indicators –

- Assessment of Activity
- Assessment of Presentation
- Assessment of Group Work
- Assessment of Collaborative Learning

c Tools and Techniques of Assessment - Written test Project Work - Field Trips and Field Diary - Laboratory Work - Interview/Oral Test - Journal Writing - Concept Mapping - Weightage Tables and Blueprint

d Recording and Reporting, - Measurement of Students' Achievements, Grading System - Measurement of Process Skills Measurement of Attitudes - Portfolio: Its role in evaluating students' performance.

Annexure – XVIII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs

CRT – Physical Science

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:
   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:
   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:
   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. **Measurement:** Measurement of lengths, Units of Measurements, Measurement of thickness of a coin, Measurement of the length of a curved path, Measurement of Area, Measurement of the area of a regular and irregular surface, Measurement of volume, measurement of volume of liquids, Measurement of volume of irregular solids using a measuring cylinder
2. **Natural Resources:**

   i. Air and Water: Composition of air, Hot air and Cool air, Effects of moving air, Cyclone, Measurement of Atmospheric Pressure, Air Pollution, Sources water on earth, Forms of water, evaporation of water, condensation of water, water cycle, Water and its uses, Measurement of the volume of water, Water pollution, Process of waste water treatment, safe drinking water stages, Diseases caused by untreated water, other ways of disposing sewage, Types of drainage systems, Draughts, Floods, Conservation of water.

   ii. **Weather and Climate:** Measuring components of weather, measurement of temperature of a place, Measurement of rainfall, direction of wind, Humidity, Climate and life style.

   iii. **Coal and Petroleum:** Sources of materials, Exhaustible and Inexhaustible materials, Coal - formation, Uses of Coal - Coal, coke and Coal tar, Col gas, Petroleum - formation, refining of petroleum, uses of petroleum, use of natural gases, Petrochemical products, conservation of coal and petroleum, Misuse of energy resources and consequences, harmful effects caused during use of fuels.

iv. Combustion, Fuels and flame: Combustible and non-combustible materials, Process of combustion, Ignition temperature, Types of combustion, Fuels, calorific value, Fire control, Flame, structure of flame

3. **Natural Phenomena**

i. **Light:** Sources of light, Shadows, Reflection, Laws of Reflection, Periscope,

Kaleidoscope, Pin hole camera, Reflection of light by plane surfaces- Formation of image by a pinhole camera, Fermat principle, Plane mirror, Reflection of light by plane mirror, Plane of reflection, Formation of an image by plane mirror and its characteristics, uses of plane mirrors, Reflection of light at curved surfaces (Spherical Mirrors), Finding the normal to a curved surface, Pole, Principal axis, Centre and Radius of curvature, Ray diagrams for concave and convex mirrors, Sign convention, Magnification, Characteristics of the images formed by spherical mirrors, Refraction-Refraction of light at plane surfaces- Refractive index, Relative refractive index, Snell's law, Total Internal Reflection, Mirages, Applications of total internal reflection, Refraction through glass slab, lateral shift and vertical shift, Refraction of Light at curved surfaces- Image formation, Types of lenses (converging and diverging) , Focal length, Rules to draw ray diagrams for image formation by lenses, Characteristics of the images formed by lenses, Lens formula, Magnification, Lens maker formula, Human eye, Least distance of distinct vision, Structure of human eye, Vision defects-Myopia, Hypermetropia and Presbyopia, Power of lens, Prism, Refractive index of Prism, Dispersion and Scattering of Light.

ii. **Sound**: Identifying different sounds, Sound is a form of energy, Production of sound, Propagation of sound in different media, Types of waves, Sound waves- Longitudinal, Characteristics of the sound Wave-Loudness, feebleness, Wave length, Amplitude, Time period and frequency, Speed of sound wave, Noise and Music, Musical instruments, Characteristics of a musical Sound-Pitch, Loudness, Quality, Audible range, Sound pollution, Measure to control sound pollution. Reflection of sound, Echo, Reverberation, Uses of multiple reflection of sound, Range of hearing, applications of ultrasound, SONAR.

iii. **Heat:** Sources of Heat, Heat is a form of an Energy, Heat, Temperature and Units, Measurement of Temperature, Fahrenheit and Centigrade scales, Different types of thermometers, Thermal equilibrium, Temperature and kinetic energy, Specific heat, Applications of specific heat capacity, Method and Principles of mixtures, Determination of specific heat of a solid, Evaporation, Condensation, Humidity, Dew and Fog, Boiling, Latent heat of vaporization, Melting, Freezing.

iv. **Some natural phenomena:** Types of charges and their interaction, Presence of charge of a body, transfer of charge, Lightning, Lightning safety, Lightning conductors, Earthquakes, Tsunami, protection against Earthquakes, Earthquakes in Telangana.

v. **Stars and solar system**- Length of a shadow, North-south movement of the

Sun. Sun dial, Moon, Phases of Moon, Solar and Lunar eclipses, Constellations, Pole star, Solar System, The planets, Stars, Meteors, Asteroids and Comets, Artificial Satellites.

4. **Kinematics and Dynamics**

i. Motion- Motion and rest, Types of motions- Translatory motion, Rotatory motion, Oscillatory motion, Distance and Displacement, Scalars and Vectors, Speed, Velocity, Average speed and Average velocity, direction of motion of a body, Uniform motion, Non-uniform motion, Acceleration, Deceleration, Equations of uniform accelerated motion, time-distance graphs, Difference between graph and map, Graphs of objects moving at different uniform speeds, Relation between speed and the slope of a graph, Graphs of stationery objects, Graphs of non-uniform motion, Newton's laws of Motion-First law of motion, Inertia and mass, Second law of motion, Linear momentum, Atwood machine, Third law of motion, Conservation of momentum, Impulse,

ii. Gravitation- Uniform circular motion, Universal law of Gravitation, Freefall, Direction of 'g', Weight, Weight of a free-fall body, Changes during the free-fall of a body, Centre of Gravity, Stability

iii. Work and Energy-Work, Idea of Energy, Energy transfer and work, Understanding the increase and decrease in energy of an object, Kinetic energy, Potential Energy, Observing the energy in-stretched rubber band and in an object at some height, Mechanical energy, Conservation of Energy-Conservation of mechanical energy, Calculation of the total energy of freefall at different heights, Power, Sources of Energy, Fuels, Renewable sources of Energy.

iv. Force: Types of forces- Contact forces and field forces, Net force, Effects of net force acting on a table, Effect of stretched rubber bands on fingers, calculation of net force from free body diagrams, Effect of force on change the state of motion and its direction, Effects of net force on direction of moving object, other effects of force, Pressure,

v. Friction: Types of friction, Factors affecting friction, friction produces heat, Increasing and decreasing of friction, principle of ball bearings, Fluid friction, factors influencing the fluid friction.

vi. Floating bodies- Density and relative density, Relative density of liquids, Lactometer, Upward force in liquids, Pressure of air, Measurement of atmospheric pressure, Buoyancy and measurement of the force of Buoyancy, Archimedes' Principle, Pascal's Law.

vii. Time: Estimating time, Units of time, Time Measuring instruments.

5. **Magnetism:** Story of magnet, Magnets of different shapes, materials attracted by Magnet, Poles of a Bar magnet, Directions of a Bar magnet, Magnetic compass, attraction and repulsion between two magnets, Earth as a Magnet, Magnetic and non-magnetic substances, Making of a magnet and magnetic compass, Magnetic induction.

6. **Electricity** -Electric cell-Dry cell, Bulb, Switch, Torch light, Electric symbols and their uses, Simple electric circuits, Connecting Electric cells and bulbs in Series and Parallel, Heating effect of electric current, Tube lights, Compact Florescent lamps, Miniature circuit breaker(MCB), Electric fuses, Testing conductivity of materials- conductors, insulators, Electric conductivity of liquids, Electric conductivity of electrolyte, Chemical effect of electric current, Electrolytic cell, Electroplating and its uses,

   Electric current: Potential difference, Electromotive force(emf), Ohm's law, Electric shock, Factors affecting the resistance of the Material-Temperature, Nature of material, Length of the conductor, cross section area. Electric Circuits-Series and parallel connections of resistors, Kirchhoff's Laws-Junction law and Loop law, Electric power.

7. **Electromagnetism**- Oersted's Experiment, Magnetic field, Lines of magnetic field, Magnetic flux and flux density, Magnetic field due to currents-Magnetic field due to straight wire carrying current, Magnetic field due to circular coil, Magnetic field due to solenoid, Magnetic force on moving charge and current carrying wire- Right hand rule, Electric Motor, Electromagnetic Induction, Faraday's Law, Lenz law, Applications of Faraday's law of electromagnetic induction, Electric Generator, Alternating & Direct Currents.

8. **States of Mater** – Matter around us- Properties of Materials-Transparent, Opaque, translucent, States of matter, Changes in Matter(Physical change and Chemical Change, Slow and fast changes, temporary and permanent changes), Properties of solids, liquids and gases. Compressibility, Diffusion- diffusions in liquids, diffusion of solids in liquids, Diffusion of two gases, Matter- Changing its states.

9. **Atomic Structure and Atoms, molecules:**

   i. **Atoms, molecules**- Law of conservation of mass, Laws of constant proportions, Dalton's atomic theory, Atoms and molecules, Symbol of elements, Atomicity, Molecules of compounds, Chemical formulae of compounds, Formula unit mass, Mole concept, Molar mass.

   ii. **Atomic Structure**- Sub atomic particles, Electron, Proton and Neutron, Structure of Atom, Atomic Models – Thomson's model of Atom, Rutherford's alpha particles scattering experiment, Rutherford's model of atom and its limitations, Bohr's model of atom. Distribution of electrons in different Orbits (Shells), Valency, Atomic number, Atomic mass number, Writing symbols of atoms, Isotopes. Applications of Isotopes. Spectrum, Characteristics of electromagnetic wave, Electromagnetic spectrum, Bohr's model of hydrogen atom and its limitations, Bohr-Sommerfield model of atom, Quantum mechanical model of atom, Quantum numbers, Electronic configuration, The Pauli Exclusion principle, Aufbau principle, Hund's Rule.

10. **Classification of Elements-Periodic Table:** Need for the arrangement of elements in an organised manner, Dobereiner's law of Triads, Mendeleeff's Periodic table, The periodic law, Salient features and achievements of the Mendeelleff's periodic table,

Limitations, Modern periodic table, Positions of elements in the Modern periodic table, Groups and Periods. Metals and Non-metals. Periodic properties of elements in the modern periodic table, Properties of elements and their trends in Groups and Periods-Valance, Atomic radius, Ionisation energy, Electron Affinity-Electron gain enthalpy, Electronegativity, Metallic and non-Metallic properties

11. **Materials**

i. Acids, Bases and Salts: Natural indicators, Chemical indicators to test Acids and Bases, Acid rains, Manures, Salts, Chemical properties of Acids and Bases, Reaction of Acids and Bases with Metals, metal hydrogen carbonates and metal oxides, non-metal oxides. Neutralization reaction, General properties of Acids and Bases, Strength of acid or base, Concept of pH, Importance of pH in everyday life, Family of Salts, pH of salts, Chemicals from common salt, Common salt-A raw material for chemicals, Sodium hydroxide from common salt, bleaching powder, Baking soda, washing soda, Removing water of crystallisation, Plaster of Paris.

ii. Natural Fibres, Synthetic Fibres and plastics: Types of fibres, Natural fibres-Cotton, Jute, Silk, Wool, Yarn to fabric, identifying fibres - burning test, Synthetic fibres- Nylon, Rayon, Acrylic, Polyesters, Plastics-Resin identification codes, Plastics, Types of plastics - Thermo plastics, Thermosetting plastics, plastics and environment, Bio degradable and non-biodegradables, 4R principle, recycling code.

iii. Metals and Non-metals: Physical properties of Metals-Appearance, Sonority, Malleability, Ductility, Electric and Thermal conductivity. Chemical properties of metals- Reaction with oxygen, rusting of metals, Reaction with water, Reaction with Acids, Reactivity of metals, Uses of metals and non-metals.

12. **Chemical Bonding and Molecular Structure**

Lewis dot structures, Electronic theory of valence by Lewis and Kossel, Ionic Bond, Formation of Ionic bond, Cation formation, Anion formation, The arrangement of Ions in ionic compounds, Factors affecting the formation of cation and anion, Covalent bond, Formation of O_2 , N_2 , Methane, Ammonia, water molecules, The bond lengths and Bond energies of covalent bonds, Draw backs of electronic theory of valance, Valance shell electron pair repulsion (VSEPR) theory, Valence bond theory, Hybridization.

13. **Chemical Equations and Reactions:** Chemical equations, writing a chemical equation, balancing of chemical equations, making chemical equations more informative, Interpreting a balanced chemical equation, Types of Chemical reactions - Chemical combination, Chemical decomposition, Chemical displacement, Chemical Double decomposition,

14. **Solutions and Separation of Substances**

i. Solutions: Mixtures, Types of mixtures, Solutions, properties of solution, Concentration of solutions, Saturated and unsaturated solutions, Factors affecting the

rate of dissolving. Mass percentage, Volume percentage and Mass by volume percentage. Suspensions and colloidal solutions. Tyndall effect,

ii. Separation: Separating the components of a mixture, Hand picking, Sedimentation and decantation, sieving and filtration, Crystallization, Sublimation, Evaporation, Paper chromatography, Separation of immiscible and miscible liquids, Distillation, fractional distillation, Types of pure substances.

15. **Chemistry of Carbon and its Compounds**

Hybridization, Allotropic forms of Carbon, Versatile nature of Carbon, Hydro carbons, Functional groups in carbon compounds, Isomerism, Homologous series, Nomenclature of organic compounds, Chemical properties of carbon compounds- Combustion, oxidation reactions, addition reactions, substitution reactions, Some important carbon Compounds-Ethanol, Ethanoic acid. Esterification, Soaps- Saponification and Micelles.

16. **Principles of Metallurgy**

Occurrence of the metals in nature, Extraction of the metals from the Ores, Concentration or dressing of the Ore, Extraction of crude metal from the Ore, Reduction of purified Ore to the metal, Purification methods of the crude metal, Corrosion, Prevention of Corrosion, few importance processes used in Metallurgy- Smelting, Roasting, Calcination, Furnace.

Part V- Pedagogy

1. Nature of Physical Sciences

i. Science as a particular way of looking at nature, a rapidly expanding body of knowledge, an interdisciplinary area of learning, always tentative, an approach to investigation and as a Process of constructing knowledge.

ii. Scientific Method: Observation, inquiry, hypothesis, experimentation, data collection, generalization.

iii. How Science Works, how children learn science?

2. Science and Society – Historical Development

i. Physical science for environment, health, peace, equity (Gender & Science) and Inclusion.

ii. Need and Significance of History of science in teaching science – Historical development perspective of Science.

iii. Contributions of Scientists– Isaac Newton, John Dalton, J.C. Bose, Albert Einstein, Niels Bohr, C.V. Raman, Louis Victor de Broglie, Bimla Buti, Venkataraman Ramakrishnan, APJ Abdul Kalam, Marie Curie.

3. Aims of Learning Physical Science

i. Aims of Learning Science

ii. Knowledge and Understanding through Science
iii. Nurturing Process Skills of Science, Curiosity, Creativity and Aesthetic Sense
iv. Development of Scientific Attitude and Scientific Temper- Respect for evidence, Open-mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism, Objectivity, Perseverance – Notion of Popular Science – Its importance and involvement of science teacher.
v. Relating Physical Science Education to Natural and Social Environment, Technology, Society and Environment.
vi. Imbibing the Values Through Science Teaching – Feynman's Perspective of Science values
vii. Development of Problem Solving Skills

4. Learning objectives of physical science

i. Meaning of Learning Objectives
ii. Developing Learning Objectives, Features of well-developed learning objectives.
iii. Bloom's Taxonomy, Anderson and Krathwohl's Taxonomy
iv. Writing Learning Objectives, Remembering, Understanding, Applying, Analysing, Evaluating, Creating
v. Learning Objectives for Upper Primary, Secondary and Higher Secondary Stages
vi. Learning Objectives in the Constructivist Perspective
vii. Academic Standards in Physical Science

5. Pedagogical Shift in Physical Science

i. Pedagogical Shift:
   a. Science as Fixed Body of Knowledge to the Process of Constructing
   b. Knowledge
   c. Nature of Science
   d. Learners learning and teacher
   e. Physical Science curriculum, Diversity in class, Approaches
   f. Planning Teaching-Learning Experiences
   g. Assessment
   h. Inclusion- Information and Communication Technology (ICT)
   i. Professional development
ii. Democratising Science Learning: Critical Pedagogy- Critical pedagogy and role of Teachers.
iii. Content-cum-methodology: Meaning, Concept & Nature
iv. Steps to Content-cum-methodology
v. Steps to Pedagogical Analysis
vi. Content and Teaching Skills

6. School Curriculum in Physical Science

i. History of Development of Curriculum Framework
ii. Curriculum Framework, Curriculum and Syllabus
iii. Curriculum Development; From Subject-centred to Behaviourist to Constructivist Approach,
iv. Recommendations of NCF-2005 and APSCF-2011 on Science Curriculum-National Focus Group position paper on Science and State position paper (2011) on Science
v. Print Resources- Textbooks, Popular science books, Journals and magazines
vi. Dale's Cone of Experience- Using the Cone of Experience
vii. Teacher as Curriculum Developer – Localized curriculum, place for Artisans knowledge systems in curriculum, local Innovators and Innovative Practices of science.

7. Approaches and Strategies for Learning Physical Science

i. Approaches and Strategies for Learning Physical Science, Difference between approach and strategy.
ii. Different approaches and strategies of learning
   a. Scenario from 1950–1980
   b. Post 1980 Scenario
   c. Selecting appropriate approach and strategy
iii. Essential components of all approaches and strategies
iv. Constructivist Approach – Science teaching strategies – State developed model.
v. 5E Learning Model
vi. Collaborative Learning Approach (CLA)
   a. Steps of collaborative approach
   b. Ensuring meaningful learning through CLA
   c. Ways of applying collaborative learning approach
   d. Limitation of collaborative learning approach
vii. Problem Solving Approach (PSA)
   a. Steps in problem solving approach,
   b. Teacher's role in problem solving approach,
   c. Problem solving approach: an example
viii. Concept Mapping- Phases of the concept mapping, Uses of concept maps
ix. Experiential Learning- Abilities of an experiential learner

8. Learning Resources – Community, ICT and Laboratory

i. Using Community Resources- Bringing community to the class, Taking class to the community: Field visit
ii. Pooling of Learning Resources
   a. Learning Resources from Immediate Environment (Natural pH indicators, Soaps and detergents, Baking soda, Washing soda, Common salt, Fruits, Fibre, Pulleys, Projectiles, Lenses and Mirrors, Inter-conversion of one form of energy to other, Propagation of waves in Solid, Liquid and Gas)
   b. Improvisation of Apparatus

c. Inexpensive Sources of Chemicals

iii. Science Kits

iv. Laboratory as a Learning Resource- Approaches to laboratory work, Planning and organising laboratory work, Working in group in the laboratory

v. Handling Hurdles in Utilization of Resources – Addressing underutilization of resources.

vi. ICT resources – e-Text books, Journals, Websites, Magazines, Different forms of ICT and its applications in science education- Audio-aids, Video-aids, Audio-Video aids, educational T.V., Use of computer for simulations, internet and Open Educational Resources

9. Planning for Teaching-Learning of Physical Sciences

i. Planning - Annual Plan, Unit Plan and Period plan

ii. Identification and Organisation of Concepts for teaching -learning of science / Physics and Chemistry (Motion, Work and Energy, Matter and their Measurements, Carbon and its Compounds, Periodic Properties of Elements, Atomic Structure, Dual Nature of Matter and Radiation).

iii. Elements of a Physical Science Lesson- Learning objectives and key concepts, Pre-existing knowledge, Teaching-learning materials and involving learners in arranging them, Introduction, Presentation/ Development, Assessment: Acceptable evidences that show learners understand (i) Determining learning evidences (ii) Planning of the acceptable evidences of learning for assessment Extended learning/assignment.

iv. Making Groups-Why group learning? Facilitating formation of groups

v. Planning and Organising Activities in Physical Science

vi. Planning Laboratory Work – State commitments in organizing experiments Text-book orientation.

vii. Planning ICT Applications - Integrating ICT in teaching and learning process

10. Physical Science Teacher

i. Characteristics and role Science Teacher

ii. Professional Development

iii. Reflective Practices

iv. Science Teacher as a Researcher

11. Tools and Techniques of Assessment

i. Test, Examination, Measurement, Assessment and Evaluation.

ii. Continuous and Comprehensive Evaluation (CCE)- Educational assessment and educational evaluation, Performance-based assessment: A flexible way of school based assessment.

iii. Assessment Framework,

a. Purpose of assessment

b. Learning Indicators (LI);

- Types of indicators
- Illustrations of Learning Indicators,
  - Assessment of activity
  - Assessment of presentation
  - Assessment of group work
  - Assessment of collaborative learning

c. Tools and Techniques of Assessment
   - Written test
   - Project Work
   - Field trips and field diary
   - Laboratory work
   - Interview/Oral test
   - Journal writing

d. Recording and Reporting
   - Measurement of students' achievements
   - grading system
   - Measurement of process skills
   - Measurement of attitudes
   - Portfolios

e. Reflecting Process; Assessment as a reflecting process

iv. Assessment of Learning of Students with Special Needs.

Annexure – XIX

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs
CRT – Biological Science

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

I. **Biological Sciences**: Its importance and human welfare, Biologists.

II. **Living World:** Life and its Characteristics, Classification of Living Organisms

III. **Microbial World:** Virus, Bacteria. Algae. Fungi and Protozoan. Useful and Harmful Micro-organisms

IV. **Cell & Tissues:** Discovery of the cell, Diversity in Cells, Cell is a Structural and Functional unit of life. Prokaryotic and Eukaryotic Cell. Structure of Eukaryotic Cell, Cell Organelles – Structure and functions, differences between Plant Cell and Animal Cell. Cell Division - Mitosis and Meiosis – their significance, Tissues - Plant and Animal tissues - Structure, Functions and Types.

V. **Plant World:** Morphology of a typical flowering plant - Root, Stem, Leaf, Flower - Parts of a Flower and their functions, Fruit, Modifications of Root. Stem and Leaf, Photosynthesis, Transpiration, Transportation (Ascent of Sap). Respiration, Excretion and Reproduction in Plants, Plant Hormones, Economic importance of Plants, Agricultural Operations – production of food from plants, seasonal crops, Crop diseases and Control measures, Improvement in Crop yield, Storage Preservation.

VI. **Animal World:** Organs and Organ Systems including man - Their Structure and Functions Digestive system, Respiratory system, Circulatory system, Excretory

system, Nervous system - Control and Coordination and Reproductive system. Sense Organs: Structure and Functions of Eye, Ear, Nose, Tongue and Skin. Nutrition in man Nutrients and their functions, Balanced Diet, Deficiency diseases. Tropical diseases, Skin diseases. Blindness in humans: Causes, Prevention and Control, Health agencies, Economic Importance of Animals, Animal Husbandry, Breeding of Cows and Buffaloes

VII. **Heredity and Evolution:** Mendel's Laws of inheritance, Reasons for selecting Pea plant, blood groups and Rh-factor, Thalassemia, Sex determination in human beings, Theories of Evolution – Lamarckism, Darwinism, Evidences of evolution – Homologous, analogous, vestigial organs, evidences from embryology and fossils, Human evolution.

VIII. **Our Environment:** Abiotic and Biotic factors, Ecosystem, Food chain, Food web, ecological pyramids and types, Natural Resources Classification, Energy Flow in an ecosystem, Judicial use of Renewable, Non-renewable and Alternative Resources, Wild Life Conservation, Sanctuaries, National Parks in India. Bio- Geochemical Cycles, Environmental pollution - Air, Water, Soil and Sound – causes, effects and preventive measures, Global Warming (Green House Effect), Acid Rains and Depletion of Ozone layer. Energy relations in an Ecosystem. Bio-mass and Bio-fuels Non-Conventional Energy sources

IX. **Applied Biology:** Recent Trends in Biology, Tissue culture, Pisciculture, Sericulture. Poultry management, Hybridization.

Part V - Pedagogy

Unit-I - Nature of Science:

The Nature and scope of Science, The History and Development of Science, including the eminent contributions of important Biologists – Aristotle, William Harvey, Lamarck, Charles Darwin, J.C. Bose, M.S. Swaminathan, Birbal Sahni, Elizabeth Blackburn, Recent advancement in Biological Science, Biological Science in Everyday Life.

Unit-II - Aims of Learning Biological Science:

Values, Aims and Objectives of Teaching Biological Science, Knowledge and understanding through Science, Nurturing Process, Skills of Science, Development of

Scientific Attitude and Scientific Temper, Respect for Evidence, Open Mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism, Objectivity, Perseverance, Role of Science Teacher, Relating Biological Science Education to Physical Science and Social Environment, Technology, Society and Environment.

Unit-III - Learning objectives of Biological science:

Meaning of Learning objectives, Developing of Learning objectives and features well developed learning objectives, Bloom's Taxonomy of Educational objectives, specific / behavioral / instructional objectives, Anderson and Krathwohl's Taxonomy, Academic Standards in Biological Science.

Unit-IV - Biological Sciences Curriculum:

Historical of Development of Curriculum Framework, Curriculum Framework - Curriculum and Syllabus, Principles of Curriculum construction in Biological Science, Organization of subject matter – different approaches - correlated, integrated, topical, concentric, unit and chronological. Recommendations of NCF-2005 and TSCF -2011 on Science Curriculum National Focus Group Position Paper on Science and State Positon Paper (2011) on Science, Constructivist approach in Biological Science, Trends of Science Curriculum / Syllabus, moving from Textbook to Teaching-Learning Materials, going beyond the Textbook, Print Resources: Textbooks, Popular Science Books, Journals and Magazines, Edger Dale's Cone of Experiences-Using the Cone of Experience, Teacher as Curriculum Developer.

Unit-V - Approaches and Methods of teaching Biological Science:

Lecture method, Lecture cum Demonstration method, Historical method, Heuristic method, Project method, Laboratory method, Problem Solving method, Scientific method, Microteaching, Team teaching, Inductive and Deductive Approaches, Constructivist Approach- 5 E Learning Model, Collaborative Learning Approach (CLA), Problem Solving Approach (PSA), Concept Mapping, Experiential Learning, Multimedia approach in teaching learning process and Programmed learning, Computer Assistant Instruction (CAI) and Computer Aided Learning (CAL).

Unit-VI - Planning for Effective Instruction in Biological Science:

Year plan, Unit plan, Lesson plan, Learning experiences, Characteristics, Classification, Source and relevance, Teaching Learning Material (TLM) – Characteristics

and importance, Principles to be followed in preparation and usage, Classification, Types, Hardware and Software in TLM, Planning ICT applications.

Unit-VII – Community and Learning Resources

Using Community Resources - Bringing community to the class, taking class to the community: Field visit, Pooling of Learning Resources, Teaching Learning Material and Improvisation of Apparatus, Science Kits, Laboratory as a Learning Resource, different forms of ICT and its applications in Biological Science Education – Audio aids, Video aids, Educational TV, Use of computer for simulation, internet and Open Learning Resources.

Unit-VIII – Assessment and Evaluation in Biological Sciences:

Test, Examination, Measurement, Assessment and Evaluation, Continuous and Comprehensive Evaluation (CCE), Performance Based Assessment, Assessment Framework - Purpose of assessment, Learning Indicators, Tools and Techniques of Assessment - Written test, Project work, Field trips and field diary, Laboratory work, Interview/Oral test, Journal writing, Concept mapping, Use of Rubrics, Recording and Reporting of the project work, Technical and Academic Guidance, Measurement of students' achievements, Grading system, Measurement of process skills, Portfolio: Its role in evaluating students' performance, Assessment as a reflecting process, Assessment of Learning of Students with special needs.

Unit-IX - Pedagogical Shift in Biological Science:

Pedagogical Shift: Science as Fixed Body of Knowledge to the Process of Constructing, Knowledge, Learners, learning and teachers, Scientific method to Science as inquiry, Inclusion- Science curriculum, Diversity in class approaches, Information and Communication Technology (ICT), Continues Professional Development (CPD): Role of reflective practices in professional development of biological teachers, Content-cum-methodology: Meaning, Concept & Nature.

Unit-X – Child Development

Psychology of teaching and learning of Biological Science, Learning disabilities – Difficulties in education of Exceptional and disabled children.

Annexure – XX

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs and URSs
CRT – Social Studies

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

Geography

1. Maps: reading analysis, different kinds, and making of maps- Globe as the model of earth.
2. The Solar System and the Earth: Origin and Evolution of the Solar System - Galaxy The Earth as member of the Solar System, Origin of the Earth, Rotation and Revolution of the Earth and its effects, Latitudes and Longitudes - Standard Time and International Date Line.
3. The Earth: Interior of the Earth Structure, Temperature, Pressure and Density of the Earth's interior, Major Rock types and their characteristics (Igneous Rocks, Sedimentary Rocks and Metamorphic Rocks).
4. Major Landforms: Mountains, Plateaus and Plains, Classification and distribution of Mountains in the World, Geomorphic process: Rock Weathering, Mass wasting, Erosion and deposition, Origin and distribution of Plateaus in the World, Classification of Plains, Formation and types of Soils. and its distribution in the World.

4a. Polar Regions

5. Climatology (Weather and Climate): Atmosphere, Structure, Insolation - Factors influencing Insolation, Temperature - Factors Composition and /Controlling Temperature, Distribution of Temperature and Inversion of Temperature, Pressure Global Pressure Belts, Winds Planetary, Seasonal, Local, Humidity and Precipitation - Rain: Types and Distribution of Rainfall, Weather Reports
6. Volcanoes: Types and Distribution of Volcanoes in the World.

7. Earthquakes: Causes and Effects of Earthquakes, Distribution of Earthquakes
8. Natural Realms of the Earth: Lithosphere, Hydrosphere, Atmosphere and Biosphere.
9. Ground water: Tanks, building of tanks - decline of tanks and fishing in tanks.- ground water level or water table - rocks and ground water in Telangana- recharging of ground water - quality of ground water and use of ground water.
10. Forests, Minerals and Mining; description and distribution- status of forests in Telangana- tribal use of forests-forest products- economic importance and trade-deforestation- forest conservation- (social forestry) -forest rights Act, 2006,
11. Major Natural Regions of the World
12. Continents: Asia, Africa, Europe, North America, South America, Australia – Location, Extent, Physical Features, Climate, Natural Vegetation and wild life, Population, Agriculture, Minerals and Industries. Transport and Trade
13. World Population: Population Growth and Density, Factors influencing the distribution of world population, population distribution patterns, population problems in developing and developed countries
14. Geography of India and Telangana: Location and Extent, Physical Features, Relief, Rivers and Drainage, Climate, Natural Vegetation, Soils, Irrigation, Power Population, Agriculture, Minerals and Industries, Transport, Electricity, Communication.

History

1. Study of the past: Pre Historic Age, proto Historic Age and Historic age
2. Bronze Age Civilisation
3. Early Iron Age Societies: impact of Iron age and the growth of Civilisation, Early Iron Civilisation in India, The Ancient Chinese Civilisation, Persian Civilisation, Greek Civilisation, Roman Civilisation, Judaism and Christianity, The Early African Civilisations and the Early American Civilisations
4. The Medieval World: Main Features of Medieval Europe, Political Developments – Feudalism, The Holy Roman Empire, The Rise of Islam and the Spread of Islam, India in Medieval Ages, Asia in the Medieval times- China and Japan
5. Ancient Indian Civilisation: Indus Valley Civilisation (Harappa Culture), Aryan Civilisation- Early Vedic and Later Vedic Civilisation
6. Political and Religious developments of 6^{th} Century B.C.
7. India B.C. 200 A.D to 300 A.D: The Mauryas, Andhra Satavahanas, the Persian and Greek Invasions, Magadha, Sangam Age, Kushans

8. India from 300 A.D. to 800 A.D: The Gupta Empire, The Pushyabhuti Dynasty (Harshavardhana)

9. Deccan and South Indian Kingdoms: The Chalkyas, the Pallavas, The Cholas, The Rashtrakutas, The Yadavas and the Kakatiyas

10. The Muslim invasions in India: The condition of India on the eve of Arab invasions, Turk invasions, Ghazni Raids and its results, effects of Muslim invasions

11. Delhi Sultanate: The slaves, the khiljies, the Thuglaqs, the Syeds and The Lodies-Down fall of Delhi Sulthanates, Sufi Movement and Bhakthi Movement and influence if Islam on the Indian Culture

12. The South Indian Kingdoms: The Kakatiyas, The Vijayanagara Empire, The Bahmani Kingdom

13. Mughal Empire: Conditions of India on the eve of Babur's Invasion, Babur, Humayun, Shershah, Akbar, Jahangir, Shahjahan, Aurangajeb, The reasons for the downfall of Mughal Empire, The rise of Marathas, History of the Sikhs

14. Advent of Europeans: Portuguese, Dutch, French, English, Anglo-French Rivalry, Carnatic Wars, Establishment of British Empire in India, The first war of Indian Independence, The Governor Generals and the Viceroys, The Socio-Religious Movements of the 19th Century - Brahma Samaj, Arya Samaj, Rama Krishna Mission, Theosophical Society, Aligarh Movement, Satya Sodhak Samaj (a) Movements among Muslims for Social Reforms

15. Cultural Heritage of India and Intellectual Awakening: Growth and Development of Early Cultures and Racial synthesis, Characteristic features of Indian History, Art and Architecture, Development of Education and Philosophy, Cultural Unity and Bhakthi Movement, Development of National Consciousness, Impact of Alien Cultures in India, Conquest of India by British and Impact of British Rule, impact of colonialism in India, Impact of English Education, Impact of Revolt of 1857 A.D.

16. India between 1858 - 1947: Political, Economic and Social Policies in India, British Policy towards Indian Princess, British Policies towards neighbouring countries

17. Changes in Economic and Social Sectors during the British period: Agriculture, Famines in India between 1858-1947, Rise of New Classes in Indian Society

18. Rise of Nationalism - Freedom Movement: Causes for the Rise of Nationalism, The Birth of Indian National Congress, The Age of Moderates and the Age of Extremists, Vandemataram Movement (Swadeshi Movement 1905-11), India during the First World war, Home Rule Movement, Mahatma Gandhi and Indian National Movement, Different stages of Freedom Movement, Quit India Movement, Mountbatten Plan,

Integration of Princely States, Liberation of French and Portuguese Colonial possessions in India

19. Independent India - the first thirty years 1947-1977- First General Elections- Election Procedure- One party domination in political system- Demand for State Reorganization- State Re organization Act, 1956- SRC- State are organization commission- social and Economic change- Foreign policy and Wars- anti- Hindi agitation- Green Revolution- Regional Parties and Regional Movements- Bangladesh war- Emergency.

20. Emerging Political Trends (1977-2007)- Return of Democracy after emergency- Elections 1977- End of Emergency- some important parties of 1970s BLD, Congress, CPI(M), DMK, Jan Sangh, SAD- Regional party- Telangana- Assam movement- the Punjab Agitation- The new initiatives of Rajiv Gandhi Era- Rise of Communalism and Corruption in High places- the Era of coalition politics-Mandal, Mandir, Market.

21. Post-War World and India- After world war-II- UNO- Cold war (1945-1991)- Proxy war- Military alliances- Arms and space race- NAM- West Asian Conflicts- Growth of Nationalism in middle east- Peace movements- Collapse of the USSR., 22.Social Movements in our times: Civil rights and other movements of 1960s- Human Rights Movements in the USSR- Anti-nuclear and Anti- war movements- Globalization, marginalized people and environmental movements- Greenpeace Movement in Europe- Bhopal Gas Disaster related movements- Silent Valley Movement 1973-85- Movement against dams- Narmada river- Movement of women for social Justice- Aadavallu Ekamaite- Social mobilization on human rights-Meria paibi Movement.

22. Rulers of Golconda: Qutub Shahis and Asaf Jahis

23. Land lords and tenants under the British and Nizams- Freedom movement in Hyderabad State.

24. The Movement for the Formation of Telangana State: The merger of Hyderabad with India- The Gentlemen's Agreement- Mulki rules- 1969 Agitation- Movements in 1990s- In the process of achieving Telangana- Withdrawal of Announcement-Telangana achieved -Prof. Jaya Shanker.

25. The Modern World: Beginning of Modern Age, Renaissance, Development in Science, The Reformation Movement, Rise of Nation States, Struggle against Absolute Monarchies.

26. Changing Cultural Traditions in Europe 1300-1800: The Ancient and Medieval World in Europe- Medieval Asia- Beginning of Modern era- Humanism- Artists and Realism- Architecture- The Printing Press- A New Concept of Human Beings- The Aspirations

of Women- Reformation- Beginning of Modern Science- Exploration of Sea Routes- Renaissance in India

27. Democratic and Nationalist Revolutions 17th and 18th 19th Centuries: England-The Civil War and the Glorious Revolution- American War of Independence 1774-1789- French Revolution-Growing Middle Class- The Outbreak of the Revolution- France- Constitutional Monarchy- The Reign of Terror- Directory of Rule -Nepolean- Unification of Germany- Unification of Italy.
28. Capitalism and Industrial Revolution -Social Change.
29. The Revolutionary Movements: The Glorious Revolution, The American war of Independence, The French Revolution of 1789
30. Nationalist Movements: Rise and fall of Napoleon, French Revolution of 1830 and the 1848 Revolt, Unification of Germany and Italy, Socialist Movements - Rise of Working class, Paris Commune of 1871
31. Imperialism: Factors in the rise of Imperialism, Forms and Methods of Imperialism, Scramble for Africa and Asia, Colonialism in America.
32. Contemporary World: The First World war, League of Nations, The Russian Revolution of 1905 and 1917- Expansion of Democracy- in World.
33. The World up to World War II: Rise of Fascism and Nazism, Militarism in Japan, U.S.A. and U.S.S.R. after World War I, Turkey after World War I, Failure of League of Nations, Spanish Civil war, World war II, The Nationalist Movements in Asia and Africa, Emergence of Latin America.
34. The World after World War II: Formation of Military Blocks, Role of independent Nations of Asia and Africa in the World Affairs, Non-Alignment Movement, Role E. of UNO in preserving World Peace, Problems of Disarmament and Nuclear Weapons, Prominent Personalities of the World.
35. Developments in China 1911-1949 - Nationalist Revolution of 1911-communist Revolution of 1948

Civics

1. Family/Social Institutions: Family, Marriage, Religion, Education, Economic and Political.
2. Community and Groups: Types of Community and Groups, Community Development, Civic life, Social evil in our Society, Evolution of Society, Culture and Society
3. State: Essential elements of State, Nation and State - Nation, Nationality, Nationalism.

4. Our Government: Local Self Government - Rural and Urban, Decentralization of powers, District Administration, Role of Public Services, Govt. at Centre, State with reference to Executive - Executive Council in the Union Government and State, Government. Legislative - Indian Parliament, State Legislative Assembly. Legislation and Judiciary and interpretation of Laws - Independent Judiciary. Judiciary system in the Country and State, Courts as watch dogs of Citizens Rights, Lok Adalats.·

5. Citizenship Administration - Citizen Charter, Central Vigilance Commission, Lok Ayukta, Human Rights Commission, Good Governance Information Act,Right to Information Technology Act, e-Governance, People's participation in Governance, Indian Constitution: Historical background, Constituent Assembly, Drafting Committee, Sources of Indian Constitution, Classification of Constitution, India as a Nation, Preamble, Salient features of Indian Constitution, Fundamental Rights and Directive Principles, Fundamental Duties, Rights and Duties Meaning, kinds of Rights and Duties, India as a Federation and Unitary State, Unity in Diversity, National Integration.

6. Indian Democracy: Meaning, Nature, Types of Democracy, Elections and Election process, Major Political parties, Role of Political parties in Democracy, Presidential and Parliamentary Democracy, Future of Democracy, Public opinion - Agencies of Public opinion, Press, Media, Political parties, Pressure groups. Democracy in village level, Local Self Governments in urban areas.

7. Socialism: Meaning, Definition, Characteristics of Socialism, Social barriers in Challenges facing in our Country - Illiteracy, India, Socialism in practice Regionalism, Communalism, Child Rights, Law, Society and individual, Anti Social Practices, Socialism and Constitutional Provisions

8. Secularism: Need and Importance, India - Religious tolerance, Promotion of Secularism in India.

9. World Peace and Role of India: India in the International Era, Foreign Policy, Non-Alignment Movement (NAM) Policy, India and Common Wealth, India's relations with super powers, India and neighbours, India and SAARC, India's leading role in the World.

10. U.N.O. and contemporary World problems: UNO - Organs and specialized Agencies, functions, achievements, India's Role in UN, Contemporary World problems, New international Economic Order, Environmental Protection, Human Rights.

11. Traffic Education / Road Safety Education.

12. Women Protection Acts and Child Rights.

13. Culture and Communication- Handicrafts and handlooms in Telangana Structural Monuments- performing arts- and artists, Film and print media and sports: Nationalism and Commerce.

14. Disaster Management

Economics:

1. Economics - Meaning, Definitions, Scope, Importance, Classification of Economics (micro and macro) - Concepts of Economics - different types of goods, wealth, income, utility, value, price, wants and welfare Basic Elements of Economics Types of Utility,
2. Consumption, Production, Distribution, Scarcity, Economic agents. Factors of Production - Land, Labour, Capital and Organization - Forms of Business Organization. Consumption: Cardinal and Ordinal Utility, The Law of diminishing Marginal Utility - Limitations and Importance, Law of Equi-Marginal Utility - Consumers Equilibrium, Importance of the Law.
3. i) Theory of Demand: Meaning, Determinants of Demand, Demand Schedule - Individual and Market Demand Schedule, the Law of Demand, Demand Curve, Demand function, Elasticity of Demand.

   ii) Supply: Theory of Production, Production function, factors of Production, Supply schedule, Determinants of Supply, Supply function, Fixed and variable costs, Law of Supply, Supply Curve. Cost Curves,money costs and real costs, total cost, average cost, and marginal cost- opportunity cost. Revenue - total, average and marginal revenue.

   iii) Theory of Value - Classification of Markets, Perfect Competition features, Price determination - Types of Imperfect competition Monopoly, Oligopoly, Duopoly.

   iv) Theory of Distribution: Distribution of Income - determination of factor. prices - rent, wage, interest and profit, Types of Economics, Capitalistic, Socialistic and Mixed economy

4. National Income: Definitions of National Income National Product - Net National Product - National Income at factor cost- Gross Personal income Disposable income - Per capita income Domestic Product Net Domestic Product - Nominal and Real Gross Consumption - National Product, Components of National income Investment Government expenditure Exports minus Imports Standard of living, (Y=C+I+G+X-M), National Income and Distribution, Human Development Index, Economic inequalities and Poverty Line.
5. Revenue and Expenditure: Types of Revenue, Taxation and Indirect Taxes, Types of Taxes, Progressive, regressive, Proportionate, Cannons of Taxation, Effects of Taxes, Public Expenditure, GST

6. Budget: Meaning, Definition, Central and Stage Budgets, Surplus, Balanced and Deficit, Classification of Types of Budget: Revenue & Expenditure in Budget, Types of Deficits

7. Money: Definition, Functions of Money, Classification of Money, supply of Money.

8. Banking: Commercial Banks - functions, Central Bank - origin, functions, Reserve Bank of India, Co-operative Rural Banks, Regional Rural Banks.

9. Inflation: Meaning - Definition, Types of Inflation - Effects of Inflation, Measures to control Inflation - Monitory and Physical Policies.

10. Economic Growth & Development: Economic Growth, Economic Development Concept, Indicators, Factors influencing Economic Development, Economic development in India.

11. i) Indian Economy: Characteristics of Indian Economy before Organized and Independence, Indian Economy since Independence Unorganized Sectors.

    ii) Population World Population, Population in India and Telangana - Birth and Death rate - Occupational distribution of Population in India and Telangana.

    iii) Human Resource Development: Meaning of Human Resource Development - Role of Education and Health in Economic Development, Human Development Index

    iv) Agriculture sector in India: Importance, Characteristics of Indian agriculture, Causes of Low Productivity, Measures to increase Agriculture Productivity in India, Land reforms in India, Green Revolution, Agriculture Marketing, Agricultural Finance, Role of Banks in Agriculture Development (Commercial Banks, NABARD, Co-operative Banks, Regional and Rural Banks).

    v) Industrial Sector: Role of Industrial Sector in Indian Economy, Classification of Industries, Industrial Growth, Industrial Policy Resolution - 1948, 1956 and 1991 New Economic Policy

    vi) Tertiary Sector (Service Sector) - importance

    vii) Problems of Indian Economy: Poverty, Unemployment, Regional Disparities, Inflation, Income Inequalities - Lorenge Curve.

    viii) Planning: Meaning and Definition, Planning Commission, Five Year Plans in India - A brief review, General and specific objectives of Indian Five Year Plans, Achievements and failures of Five Year Plans.

    ix) NITI Aayog

    x) Migration and Settlements

xi) Globalisation, liberalisation, privatisation

x) Food Security.

xi) Public Health & Role of Government

xii) Natural Calamities and Disaster Management- Sustainable Development

Part - V - Pedagogy

1. Social Studies: Meaning, Nature and Scope: Defining Social Studies, Main Features of Social Studies, Social Studies and social Sciences differentiated, Scope of social studies- Types of subject material and learning Experiences included in the study of Social Studies, Need and Importance of Social Studies, Contribution of Important Social Scientists and thinkers, Relation with other subjects

2. Values, Aims and Objectives of Teaching Social Studies: Values of Teaching Social Studies, Aims of Teaching Social Studies up to secondary Level, Instructional Objectives of Teaching social studies, Relationship of Instructional Objectives with general aims and objectives of Social Studies, Taxonomy of Educational and Instructional objectives, writing objectives in behavioural terms, learning outcomes

3. Social Studies curriculum: Social Studies as a core subject – Principles of curriculum construction in social studies, organisation of subject matter- different approaches correlated, integrated, topical, concentric, unit and chronological. Development of Syllabus, textbooks, Academic standards, NCF-2005, SCF-2011, Constructivist approach in social studies

4. Instructional Strategies in Social Studies: Techniques, devises and maxims, different methods of teaching social studies- story-telling, lecture, source, discussion, project, problem, inductive, deductive, observation, assignment, socialised recitation, team teaching, supervised study, 5 E Model, collaborative

5. Planning for Instruction: Developing teaching skills through micro teaching and year planning, Unit planning, Lesson/ period Planning

6. Instructional Material and Resources: Textbooks, work books, supplementary material syllabus, curriculum guides, handbooks, Audio-visual aids, social studies laboratory , library, clubs and museum, utilizing community resources, Usage of ICT and innovative techniques in Social Studies

7. Social Studies teacher: Qualities of a good social studies teacher, Roles and responsibilities

8. Evaluation in Social Studies: Concept and purpose, Types of Evaluation, Evaluation as a continuous and comprehensive process, different techniques of evaluation, preparation for scholastic achievement tests

Annexure XXI

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs and URSs
CRT - Telugu

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths

& Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV - Content

1. కవులు – రచయితలు – కావ్యాలు – రచనలు – బిరుదులు – పురస్కారాలు – పాత్రలు – నేపథ్యం – ఇతివృత్తాలు – సందర్భనేపథ్యాలు - విశేషాంశాలు

2. ప్రక్రియలు – లక్షణాలు – వివరణలు

   ఇతి హాసం – పురాణం – ప్రబంధం – శతకం – నవల – కథ – కథానిక – సంపాదకీయం – వ్యాసం – పీఠిక – జీవిత చరిత్ర – స్వీయ చరిత్ర – యాత్రా చరిత్ర – విమర్శ – వచన కవిత – అనువాదం

3. ఆధునిక సాహిత్య ధోరణులు – ఉద్యమాలు

   భావ కవిత్వం - అభ్యుదయ కవిత్వం – విప్లవ కవిత్వం – దిగంబర కవిత్వం – స్త్రీవాద కవిత్వం – దళితవాద కవిత్వం – మైనారిటీ వాద కవిత్వం – అనుభూతివాద కవిత్వం – తెలంగాణ ఉద్యమ కవిత్వం – గేయ కవిత్వం

4. జానపద సాహిత్యం

   గేయ సాహిత్య రూపాలు – కళలు – వస్తు సంస్కృతి – కథ – సామెతలు – పొడుపు కథలు – ఆచార వ్యవహారాలు – నమ్మకాలు

5. తెలుగు భాషా సాహిత్యాలపై ఇతర భాషా సాహిత్యాల ప్రభావం

   ప్రాకృతం – సంస్కృతం – ఆంగ్లం – ఉర్దూ – పార్శీ - తమిళం – కన్నడ

6. భాషా రూపాలు

శాసన భాష – గ్రాంధిక భాష – వ్యావహారిక భాష – మాండలిక భాష – ప్రసార మాధ్యమాల భాష, భాషా పరిరక్షణ –అభివృద్ధి సంస్థలు, తెలుగు భాషా ప్రాచీనత

7. సాహిత్య విమర్శ

కవి – కావ్యం నిర్వచనాలు, కావ్య హేతువులు, కావ్యాత్మ – సంప్రదాయాలు, కావ్య ప్రయోజనం, శైలి – అలంకారాలు – రససిద్ధాంతం – ధ్వని సిద్ధాంతం.

8. భాషాంశాలు

ఉచ్చారణ, ధ్వని, ధ్వని ఉత్పత్తి స్థానాలు, అక్షరం, లిపి, లిపి పరిణామం, పదం – ప్రాతిపదిక, ప్రత్యయం, అర్థం – అర్థ విపరిణామం, తత్సమం, తద్భవం, దేశ్యం, గ్రామ్యం, అన్యదేశ్యాలు, నానార్థాలు, పర్యాయ పదాలు, వ్యుత్పత్తి అర్థాలు, ప్రకృతి వికృతులు, వాక్యం – వాక్య బేధాలు, తెలుగు వాక్యం ప్రత్యేకతలు, సంధులు – సమాసాలు, ఛందస్సు, అలంకారాలు, వ్యాకరణ పరిభాష

1. పఠనావగాహన (Comprehension)

Part - V - Pedagogy

1. భాష – ఆవశ్యకత, నిర్వచనం – భాషోత్పత్తి వాదాలు, భాషా ప్రయోజనాలు
2. భాషాబోధన మరియు అభ్యసనం – ఉద్దేశాలు, లక్ష్యాలు, అభ్యసన ప్రమాణాలు (సామర్థ్యాలు), అభ్యసన ఫలితాలు, విలువలు
3. భాషా విద్యా ప్రణాళిక, విషయ ప్రణాళిక – నిర్మాణం, వ్యవస్థీకరణం, అభివృద్ధి, పాఠ్య పుస్తకాలు
4. భాషా నైపుణ్యాలు మరియు బోధన నైపుణ్యాలు
5. భాషా బోధన, పద్ధతులు, వ్యూహాలు – వివిధ ప్రక్రియల బోధన
6. బోధన మరియు అభ్యసన వనరులు (విద్యా సాంకేతిక శాస్త్రం, సహ పాఠ్య కార్యక్రమాలు)
7. ప్రణాళికలు – వార్షిక, పాఠ్య (యూనిట్), కాలాంశ (పీరియడ్) ప్రణాళికలు
8. అభ్యసన వైకల్యాలు – ప్రత్యేక అవసరాలు గల పిల్లల భాషాభ్యసనం
9. నిత్య జీవితంలో భాషా వినియోగం – భాషా సమస్యలు, భాషా విధానాలు మరియు జాతీయ, రాష్ట్ర స్థాయి విద్యా ప్రణాళికా చట్రాలు, R.T.E, 2009 చట్టం
10. మూల్యాంకనం - పరీక్షలు

Annexure XXII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs
CRT - Hindi

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.

2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.

3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management,

Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part – IV - Content

I. **कवि / लेखक रचनाएँ, विषयवस्तु, पृष्ठभूमि, चरित्र-चित्रण, भाषा शैली आदि।**

II. **साहित्यिक विधाएँ और उनकी विशेषताएँ**

III. **प्राचीन, मध्य, आधुनिक साहित्य - विभिन्न प्रवृत्तियाँ और वाद**

IV. **हिन्दी भाषा पर अन्य साहित्य / भाषाओं का प्रभाव**

V. **हिन्दी भाषा : उपभाषाएँ और बोलियाँ.**

VI. **हिन्दी भाषा – साहित्य में भारतीय काव्य शास्त्र : अर्थ, परिभाषा, प्रयोजन और लक्षण**

VII. **भाषा तत्व और व्याकरण :**

- शब्द विचार : उपसर्ग -प्रत्यय
- शब्द भेद
- लिंग, वचन, कारक,काल
- शब्द रुपांतर
- शब्द - अर्थ, भिन्न-भिन्न अर्थ, पर्यायवाची शब्द और विलोम शब्द
- शब्द परिचय : तत्सम, तद्भव, देशज और विदेशी
- वाक्य संरचना, भेद

- वाच्य
- संधि- समास
- मुहावरे, लोकोक्तियाँ, कहावते
- वर्तनी
- विशिष्ट प्रयोग (जैसे चाहिए, अपना -----)
- व्याकरण – परिभाषाएँ, उदाहरण, प्रयोजन

VIII. अनुवाद - आवश्यकता - प्रकार

IX. बोधक गद्यांश

Part V - Pedagogy

I. भाषा - अर्थ, परिभाषा, महत्व

- प्रकृति और स्वरूप
- हिन्दी भाषा
- प्रथम भाषा के रूप में
- द्वितीय भाषा के रूप में
- सरकारी भाषा के रूप में
- त्रिभाषा सूत्र
- भारतीय संविधान में हिन्दी का स्थान
- विभिन्न व्यवसायों से जुड़ी भाषा
- भाषा संबंधी मुद्दे एवं नीतियाँ, विद्यालयीन राष्ट्रीय एवं राज्य पाठ्यचर्या की रूपरेखाएँ

II. हिन्दी भाषा शिक्षण - प्राथमिक, माध्यमिक और उच्च माध्यमिक स्तर पर

- हिन्दी भाषा - शिक्षण के उद्देश्य
- अच्छे शिक्षण की विशेषताएँ
- भाषा शिक्षण के सामान्य सिद्धान्त्
- शिक्षण सूत्र
- शिक्षण प्रणालियाँ (विभिन्न विधाओं के संदर्भ में)
- शिक्षण पद्धतियाँ
- सफल शिक्षक की विशेषताएँ

III. शिक्षण में भाषा - कौशलों का महत्व

- सुनना : ध्वनि की उत्पत्ति, ध्वनि श्रवण और पारस्परिक संबंध
- बोलना : शब्दोच्चारण, वाक् यंत्र, शुद्धोच्चारण का अभ्यास, मौखिक अभिव्यक्ति, पाठशाला में वार्तालाप का अभ्यास
- पढ़नाः वाचन की विशेषताएँ, प्रकार, दोष और उपचार
- लिखना: महत्व, नियम, विधियाँ, प्रकार, अक्षर - विन्यास
- भाषा कौशलों का विकास

IV. शिक्षण उद्देश्यों का वर्गीकरण

- पाठ - योजना (गद्य, पद्य, व्याकरण, पत्र - लेखन और रचना)
- इकाई - योजना
- सूक्ष्म शिक्षण - पाठ योजना
- शिक्षण - उपकरण

V. पाठ्य पुस्तक

- पुस्तकालय
- पाठ्यक्रम
- पाठ - सहगामी क्रियाएँ
- भाषा- प्रयोगशाला
- अधिगम में सूचना एवं संचार प्रौद्योगिकी

VI. बालक का विकास : भाषा शिक्षण और अधिगम का मनोविज्ञान, भाषा विचारधारा और रचनात्मकता

- अधिगम अक्षमता : असाधारण / अक्षम बच्चों (children with disability) के लिए भाषा की शिक्षा एवं कठिनाइयाँ

VII. मूल्यांकन की धारणा -

- निरंतर समग्र मूल्यांकन
- उद्देश्य आधारित मूल्यांकन
- उत्तम परीक्षा की विशेषताएँ
- उपलब्धि- परीक्षा, प्रश्न पत्र - निर्माण
- निदानात्मक एवं उपचारात्मक शिक्षण

Annexure - XXIII

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs

CRT - URDU

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II - Basic Proficiency in English

1. School Level English Grammar:
   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:
   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:
   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy,

2020.

Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. Educational Concerns in Contemporary India:

Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; Democracy and Education: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; Economics of Education: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; Population Education: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; Inclusive Education: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness - Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; Liberalization, Privatization and Globalization; Value Education; Initiatives in Education: Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. **Constitutional Provisions relevant to Education:** Acts/Rights, Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part - IV - Content

I. زبان کی مختلف شکلیں اور حیثیتیں:

شکلیں: اشاروں کی زبان، تحریری زبان، علامتوں کی زبان

حیثیتیں: رابطہ کی زبان، مادری زبان، دوسری زبان، سرکاری زبان، قومی زبان

زبان کے مسائل اور پالیسیاں، قومی اور ریاستی نصاب کا فریم ورک

II. ادیبوں، شاعروں کی سوانح حیات، ادبی کارنامے اور ان کے اسلوب اور کرداروں کا جائزہ

(جماعت ششم تا دہم کے درسی کتب میں دیئے گئے شعراء اور مصنّفین)

III. اصناف ادب کا تفصیلی مطالعہ

حصہ نظم: حمد، نعت، منقبت، قصیدہ، موضوعاتی نظم، غزل، مثنوی، رباعی، مرثیہ، گیت، دوہے، ماہیے۔

حصہ نثر: مضمون نگاری، داستان، ناول، افسانہ، ڈرامہ، خطوط نگاری، انشائیہ (معلوماتی، طنزیہ، مزاحیہ)، خاکہ نگاری، سوانح نگاری (آپ بیتی)

IV. اردو زبان و ادب کی ترقی کے مختلف ادوار

V. اُردو کے اسالیب بیان (مختلف شعراء اور مصنّفین کا طرز اسلوب)

VI. اُردو زبان کے عناصر

علم ہجا، علم صرف، علم نحو، علم بیان، علم الاعداد:

الفاظ کے معنی، مفرد اور مرکب الفاظ، جمع، اضداد، سابقے، لاحقے، مونث، مذکر، جنس حقیقی، جنس غیر حقیقی، محاورے، ضرب المثل، رموز و اوقاف، صنائع و بدائع، تلفظ، مخارج، اعراب۔

VII. اُردو زبان پر دیگر زبانوں کے اثرات (پنجابی، ہندی، فارسی، انگریزی)

VIII. ان دیکھا متن (Comprehension)

(1) نظم (2) نثر

Part - V - Pedagogy

I. اُردو زبان کی نوعیت، اس کا تاریخی اور ارتقائی عمل

II. اُردو زبان کے تدریسی مقاصد اور مہارتیں

اُردو زبان کے تعلیمی و تدریسی مقاصد

زبان کی مہارتیں: بنیادی مہارت، سننا، بولنا، پڑھنا، لکھنا

III. تدریسی زبان اُردو کے طریقے، تدریسی تکنیک اور اردو معلم

تدریس نثر، تدریس نظم، تدریس قواعد، اردو معلم کے خصوصیات

IV. تدریس اُردو اور منصوبہ بندی:

سالانہ، اکائی اور سبق واری منصوبہ بندی (نثر، نظم، قواعد اور سرسری مطالعہ)

V. اُردو نصاب کی تدوین:

نصاب کی تدوین کے اصول، درسی کتاب کی خصوصیات اور تنقیدی جائزہ

VI. نصابی اور ہمہ نصابی مشاغل:

اُردو کے ہمہ نصابی اور زائد ہمہ نصابی مشاغل کا انعقاد و اہمیت

VII. تدریسی و اکتسابی وسائل: تدریسی آلات، اقسام، اہمیت و تیاری

اُردو زبان کی لیبارٹری، زبان کی تدریس و اکتساب میں ICT کا استعمال

VIII. اندازہ قدر:

امتحان کی اہمیت و ضرورت، مسلسل جامع جانچ (CCE)، جانچ کے آلات اور تکنیکس، تحصیلی آزمائش، SAT کی تیاری

IX. اکتسابی معذوری اور عدم اہلیتیں/ استثنائی بچوں کی تعلیم اور درپیش مشکلات/ زبان میں معذور بچے

Annexure XXIV

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRTs in KGBVs and URSs
CRT - English

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.

5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part – III: Content (Language & Literature)

1. Language:

i) Grammar

a) Parts of Speech; b) Subject and Verb Agreement; c) Types of sentences –Transformations; d) Conjunctions; e) Verbs & Tense and Time; f) Prepositions; g) Adverbs; h) Adjectives including

Degrees of Comparison; i) Articles & Determiners; j) Interjections; k) Voice; l) Direct and Indirect Speech; m) Clauses & Phrases including Simple, Compound and Complex sentences; n) Non-finite Verbs; o) Framing Questions and Question Tags; and p) Correction of Sentences.

ii) Vocabulary

a) Synonyms and Antonyms; b) Phrasal Verbs & Idioms; c) Figures of Speech; d) Homophones; e) Homonyms; f) homographs; g) Affixation; and h) Spelling

iii) Words and Sentences in Use:

a) Choosing Appropriate words; b) Words-often Confused; c) Sentence Arrangement, d) Completion, Fillers and Improvement; e) Comprehension; f) Punctuation; g) Spotting of Errors; and English Composition (Paragraph, essay, expansion, précis, Letter writing, message, notice, article and report writing)

iv) Aspects of Pronunciation:

a) Vowel and consonant Sounds and phonemes; b) Stress: word and sentence stress; and c) Intonation: Four basic patterns of intonation.

2. Literature:

i) Comprehension of Literary prose passage and a poem

ii) Study of Literary forms:

	Name of the poet	**Title**
Poetry	1. William Wordsworth	1. Anecdote for Fathers
	2. R.L. Stevenson	2. The Swing
	3. Emily Dickenson	3. Because I could not Stop for Death
	4. D.H. Lawrence	4. Daybreak
	5. Robert Frost	5. The Road not Taken
	6. P.B. Shelley	6. The Cloud
	7. Oliver Goldsmith	7. The Death of a Mad Dog
	8. Ralph Waldo Emerson	8. The Nation's Strength
	9. Edward Lear	9. The Duck and The Kangaroo
	10. Gabriel Okara	10. Once Upon a Time
	11. Rabindranath Tagore	11. Where the Mind is without Fear
	12. Sarojini Naidu	12. Bangle Sellers
	13. Shiv K. Kumar	13. Mother's Day
Prose (Essay/Novel/ Short	1. Isaac Asimov	1. Robots and People
	2. Stephen Leacock	2. How to Live to be 200
	3. George Orwell	3. The Animal Farm (original version)
	4. E.V. Lucas	4. The Face on the Wall

story)	5. O. Henry	5. After Twenty Years
	6. Oscar Wilde	6. The Nightingale and the Rose
	7. R. K. Laxman	7. The Gold Frame
Drama	1. William Shakespeare	1. Julius Caesar
	2. Fritz Karinthy	2. The Refund
	3. J.B. Priestly	3. Mother's Day (One – act play)

Note: The Candidates are expected to have a thorough knowledge of the above mentioned poets, essayists, novelists and dramatists and their respective works mentioned at the level that is expected of a student of literature.

Part IV – Pedagogy

1. The Nature of language and its Historical Development; First Language; Second Language and Third Language; Different Types of Languages; Mother Tongue; Languages of Different Professions; Importance of languages across School Curriculum; Contributions of Creative Writers.
2. Values, Aims and Objectives of Teaching Languages
3. Child Development; Psychology of Teaching and Learning Languages; Language, Thinking and Creativity.
4. Language Curriculum: Construction, Organization and Development.
5. Language Skills; Planning for Effective Instruction in Language Classrooms: Different Plans and Designing Learning Experiences.
6. Approaches, Methods and Techniques of Teaching Languages with special reference to School Content (Prose/Fiction /Poetry/Drama/Essay).
7. Teaching and Learning Resources and Designing Instructional Material for Languages; Language Labs; Teaching Aids; Textbooks; ICT in Language Teaching and Learning.
8. Measurement and Evaluation in Languages: Continuous and Comprehensive Evaluation (CCE); Tools and Techniques of Evaluation; Achievement and Diagnostic Tests.
9. Learning Disabilities/Difficulties and Education of Exceptional/ Disabled Children in Languages.
10. Language and Everyday Life; Language Issues and Policies. National and State Curriculum frameworks.

Annexure XXV

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of CRT Science in Urban Residential School

Part I - General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part II – Basic Proficiency in English

1. School Level English Grammar:

   Articles; Tenses; Noun & Pronouns; Adjectives; Adverbs; Verbs; Modals; Subject-verb Agreement; Non-finites; Reported Speech; Degrees of Comparison; Active and Passive Voice; Prepositions; Conjunctions; Conditionals.
2. Vocabulary:

   Synonyms and Antonyms; Phrasal Verbs; Related Pair of Words; Idioms and Phrases; Proverbs.
3. Words and Sentences:

   Use of Words; Choosing appropriate words and words often confused; Sentence Arrangement, Completion, Fillers and Improvement; Transformation of Sentences; Comprehension; Punctuation; Spelling Test; Spotting of Errors.

Part III - Perspectives in Education

1. **History of Education:** Pre-Vedic and Post-Vedic period, Medieval period Recommendations of various Committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various Committees in the post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel Committee (1977), National Policy on Education, 1968, National Policy on Education, 1986, Programme of Action, 1992 and National Educational Policy, 2020.

   Aims, Objectives, Functions, Unipolar, Bipolar and Tripolar Processes of Education, Types of Education - Formal, Informal and Non-formal Education, their significance and interrelations, Philosophical, Sociological and Psychological Perspectives of Education.

2. **Teacher Education:** Concept, Teacher Preparation, NCFTE-2009, Pre-service and In service Teacher Education Programs, Teacher Motivation, Continuous Professional Development.

   Teacher Empowerment: Meaning, Interventions for Empowerment, Professional Code of Conduct for Teachers, Role of Teacher Organisations in Professional Development of Teachers, National and State Level Institutions for Teacher Education.

3. **Educational Concerns in Contemporary India:**

   Environmental Education: Meaning, Scope of Environmental Education, Concept of Sustainable Development, Role of Teacher, School and NGOs in Development and Protection of Environment; **Democracy and Education**: Equality, Equity, Equality of Educational Opportunities, Role of Education in promoting Democracy; **Economics of Education**: Meaning and Scope, Education as Human Capital, Education and Human Resource Development; **Population Education**: Significance of Population Education. Population situation, Approaches to Population Education and Themes of Population Education, Family Life Education, Sustainable development, Adolescence Education, Health Education, Gender Equality, Equity and Empowerment of Women, the Role of School and Teacher, Urbanization and Migration, Life Skills; **Inclusive Education**: Concept, Prevalence, Areas of Disabilities, Disadvantaged Groups, Gender etc., Myths & Facts, Importance of Early Identification and Assessment, Planning Inclusive

Education, Initiatives in Education, Method & Strategies of Classroom Management, Psycho-Social Management, Creation of Awareness – Students, Parents and Society & Sensitization Strategies, Evaluation, Documentation and Maintenance of Records; **Liberalization, Privatization and Globalization**; **Value Education; Initiatives in Education:** Sarva Siksha Abhiyan (SSA), National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-Meal Programme, Rashtriya Madhyamika Siksha Abhiyan (RMSA), Samagra Shiksha and its interventions, KGBVS and Model Schools etc.

4. Constitutional Provisions relevant to Education: Acts/Rights**,** Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act 2005, Child Rights, Human Rights, PWD Act, 2016 and other Provisions pertaining to Education.
5. National Curriculum Framework, 2005 and NCFSE, 2023.

Part IV – Content

1. **Measurement:** Measurement of lengths, Units of Measurements, Measurement of thickness of a coin, Measurement of the length of a curved path, Measurement of Area, Measurement of the area of a regular and irregular surface, Measurement of volume, measurement of volume of liquids, Measurement of volume of irregular solids using a measuring cylinder.
2. **Natural Resources:**

   i. Air and Water: Composition of air, Hot air and Cool air, Effects of moving air, Cyclone, Measurement of Atmospheric Pressure, Air Pollution, Sources water on earth, Forms of water, evaporation of water, condensation of water, water cycle, Water and its uses, Measurement of the volume of water, Water pollution, Process of waste water treatment, safe drinking water stages, Diseases caused by untreated water, other ways of disposing sewage, Types of drainage systems, Draughts, Floods, Conservation of water.

   ii. **Weather and Climate:** Measuring components of weather, measurement of temperature of a place, Measurement of rainfall, direction of wind, Humidity, Climate and life style.

   iii. **Coal and Petroleum:** Sources of materials, Exhaustible and Inexhaustible materials, Coal - formation, Uses of Coal - Coal, coke and Coal tar, Col gas, Petroleum - formation, refining of petroleum, uses of petroleum, use of natural gases, Petrochemical products, conservation of coal and petroleum, Misuse of energy resources and consequences, harmful effects caused during use of fuels.

iv. Combustion, Fuels and flame: Combustible and non-combustible materials, Process of combustion, Ignition temperature, Types of combustion, Fuels, calorific value, Fire control, Flame, structure of flame

3. **Natural Phenomena**

i. **Light:** Sources of light, Shadows, Reflection, Laws of Reflection, Periscope,

Kaleidoscope, Pin hole camera, Reflection of light by plane surfaces- Formation of image by a pinhole camera, Fermat principle, Plane mirror, Reflection of light by plane mirror, Plane of reflection, Formation of an image by plane mirror and its characteristics, uses of plane mirrors, Rear view mirror, Spherical mirror, Convex mirror and Concave mirror, Real and Virtual image, Regular and Irregular reflections, Lateral inversion.

ii. **Sound**: Identifying different sounds, Sound is a form of energy, Production of sound, Propagation of sound in different media, Types of waves, Sound waves- Longitudinal, Characteristics of the sound Wave-Loudness, feebleness, Wave length, Amplitude, Time period and frequency, Speed of sound wave, Noise and Music, Musical instruments, Characteristics of a musical Sound-Pitch, Loudness, Quality, Audible range, Sound pollution, Measure to control sound pollution.

iii. **Heat:** Sources of Heat, Heat is a form of an Energy, Heat, Temperature and Units, Measurement of Temperature, Fahrenheit and Centigrade scales, Different types of thermometers.

iv. **Some natural phenomena:** Types of charges and their interaction, Presence of charge of a body, transfer of charge, Lightning, Lightning safety, Lightning conductors, Earthquakes, Tsunami, protection against Earthquakes, Earthquakes in Telangana.

v. **Stars and solar system**- Length of a shadow, North-south movement of the

Sun. Sun dial, Moon, Phases of Moon, Solar and Lunar eclipses, Constellations, Pole star, Solar System, The planets, Stars, Meteors, Asteroids and Comets, Artificial Satellites.

4. **Kinematics and Dynamics**

i. Motion- Motion and rest, Types of motions- Translatory motion, Rotatory motion, Oscillatory motion, Speed, Average speed.

ii. Force: Types of forces- Contact forces and field forces, Net force, Effects of net force acting on a table, Effect of stretched rubber bands on fingers, calculation of net force from free body diagrams, Effect of force on change the state of motion and its direction, Effects of net force on direction of moving object, other effects of force, Pressure,

iii. Friction: Types of friction, Factors affecting friction, friction produces heat, Increasing and decreasing of friction, principle of ball bearings, Fluid friction, factors influencing the fluid friction.

iv. Time: Estimating time, Units of time, Time Measuring instruments.

5. **Magnetism:** Story of magnet, Magnets of different shapes, materials attracted by Magnet, Poles of a Bar magnet, Directions of a Bar magnet, Magnetic compass, attraction and repulsion between two magnets, Earth as a Magnet, Magnetic and non-magnetic substances, Making of a magnet and magnetic compass, Magnetic induction.

6. **Electricity** -Electric cell-Dry cell, Bulb, Switch, Torch light, Electric symbols and their uses, Simple electric circuits, Connecting Electric cells and bulbs in Series and Parallel, Heating effect of electric current, Tube lights, Compact Florescent lamps, Miniature circuit breaker(MCB), Electric fuses, Testing conductivity of materials- conductors, insulators, Electric conductivity of liquids, Electric conductivity of electrolyte, Chemical effect of electric current, Electrolytic cell, Electroplating and its uses,

7. **States of Mater** – Matter around us- Properties of Materials-Transparent, Opaque, translucent, States of matter, Changes in Matter(Physical change and Chemical Change, Slow and fast changes, temporary and permanent changes), Matter- Changing its states.

8. **Materials**

i. Acids, Bases and Salts: Natural indicators, Chemical indicators to test Acids and Bases, Acid rains, Manures, Salts.

ii. Natural Fibres, Synthetic Fibres and plastics: Types of fibres, Natural fibres-Cotton, Jute, Silk, Wool, Yarn to fabric, identifying fibres - burning test, Synthetic fibres- Nylon, Rayon, Acrylic, Polyesters, Plastics-Resin identification codes, Plastics, Types of plastics - Thermo plastics, Thermosetting plastics, plastics and environment, Bio degradable and non-biodegradable, 4R principle, recycling code.

iii. Metals and Non-metals: Physical properties of Metals-Appearance, Sonority, Malleability, Ductility, Electric and Thermal conductivity. Chemical properties of metals- Reaction with oxygen, rusting of metals, Reaction with water, Reaction with Acids, Reactivity of metals, Uses of metals and non-metals.

9. **Separation of Substances**

Separating the components of a mixture, Hand picking, Sedimentation and decantation, sieving and filtration, Crystallization, Sublimation, Evaporation, chromatography.

10. Biological Sciences: Introduction, Living and Non-living, Our Food, Food components, Habitat, Importance of Biology in human welfare, Biologists

11. Living World: Life and its Characteristics, Classification of Living Organisms, Biodiversity and its conservation, Extinct, Endangered, Endemic and Invasive Alien Species

12. **Microbial World:** The world of Microorganisms- Virus, Bacteria. Algae. Fungi and Protozoan. Useful and Harmful Micro-organisms, Diseases- Infectious and non-infectious

13. **Cell & Tissues:** Discovery of the cell, Diversity in Cells, Cell is a Structural and Functional unit of life. Prokaryotic and Eukaryotic Cell. Structure of Eukaryotic Cell, Cell Organelles – Structure and functions, differences between Plant Cell and Animal Cell. Cell Division - Mitosis and Meiosis – their significance, Tissues - Plant and Animal tissues - Structure, Functions and Types.

14. **Plant World:** Morphology of a typical flowering plant - Root, Stem, Leaf, Flower - Parts of a Flower and their functions, Fruit, Modifications of Root. Stem and Leaf, Nutrition in plants- Photosynthesis, Insectivorous plants, Transpiration, Transportation (Ascent of Sap). Respiration, Excretion and Reproduction in Plants, Seed dispersal, Economic importance of Plants, Fibre to fabric- Silk and wool, Soil- our life, Water in our life, Forest- our life, Agricultural Operations – production of food from plants, Seasonal crops, Crop diseases and Control measures, Improvement in Crop yield, Storage and Preservation.

15. **Animal World:** Organs and Organ Systems, Movements in Animals, , Reproduction in animals – Oviparous, Viviparous,, Reproduction in humans, Nutrition in man Nutrients and their functions, Balanced Diet, Deficiency diseases. Tropical diseases, Skin diseases. Blindness in humans: Causes, Prevention and Control, Health agencies, Economic Importance of Animals, Animal Husbandry, Breeding of Cows and Buffaloes

16. **Our Environment:** Water in our Life, Abiotic and Biotic factors, Ecosystem, Different Ecosystems – Terrestrial, Aquatic and Mangrove, Food chain, Food web, Ecological pyramids and their types, Energy Flow in an ecosystem, Energy relations in an Ecosystem, Natural Resources Classification, Judicial use of Renewable, Non-renewable and Alternative Resources, Bio-mass and Bio-fuels Non-Conventional Energy Sources Wild Life Conservation, Sanctuaries, National Parks in India. Bio-Geochemical Cycles, Environmental pollution – Common pollutants and their sources, Primary and secondary pollutants, Air, Water, Soil and Sound – causes, effects and preventive measures, Global Warming (Green House Effect), Acid Rains and Depletion of Ozone layer,

17. **Applied Biology:** Production of food from Animals- Pisciculture, Apiculture, Sericulture. Poultry management. NECC, Hybridization.

Part V - Pedagogy

1. Nature of Science:

The Nature and scope of Science; The History and Development of Science, including the eminent contributions of important Scientists - Aristotle, William Harvey, Lamarck, Charles Darwin, J.C. Bose, M.S. Swaminathan, Birbal Sahni, Elizabeth Blackburn,– Isaac Newton, John Dalton, J.C. Bose, Albert Einstein, Niels Bohr, C.V.

Raman, Louis Victor de Broglie, Bimla Buti, Venkataraman Ramakrishnan, APJ Abdul Kalam, Marie Curie; Science in Everyday Life.

2. **Aims of Learning Science:**

   Values, Aims and Objectives of Teaching Science; Knowledge and understanding through Science; Nurturing Process, Skills of Science; Development of Scientific Attitude and Scientific Temper, Respect for Evidence, Open Mindedness, Truthfulness in reporting observations, Critical thinking, Logical thinking, Skepticism, Objectivity, Perseverance, Role of Science Teacher; Relating Science Education to Physical and Social Environment, Technology, Society and Environment.

3. **Learning objectives of science:**

   Meaning of learning objectives; Developing of Learning objectives and features well developed learning objectives; Bloom's Taxonomy of Educational objectives, specific / behavioral / instructional objectives, Anderson and Krathwohl's Taxonomy; Writing learning objectives – Remembering, Understanding, Applying, Analysing, Evaluating, Creating; Academic Standards in Science.

4. **Science Curriculum:**

   Historical of Development of Curriculum Framework; Curriculum Framework - Curriculum and Syllabus; Principles of Curriculum construction in Science; Organization of subject matter – different approaches - correlated, integrated, topical, concentric, unit and chronological; Recommendations of NCF-2005 and TSCF -2011 on Science Curriculum, National Focus Group Position Paper on Science and State Positon Paper (2011) on Science; Constructivist approach in Science, Trends of Science Curriculum / Syllabus, moving from Textbook to Teaching-Learning Materials, going beyond the Textbook; Print Resources - Textbooks, Popular Science Books, Journals and Magazines; Edger Dale's Cone of Experiences-Using the Cone of Experience; Teacher as Curriculum Developer.

5. Approaches and Methods of teaching Science:

   Lecture method, Lecture cum Demonstration method, Historical method, Heuristic method, Project method, Laboratory method, Problem Solving method, Scientific method, Microteaching, Team teaching, Inductive and Deductive Approaches, Constructivist Approach- 5 E Learning Model, Collaborative Learning Approach (CLA), Problem Solving Approach (PSA), Concept Mapping, Experiential Learning, Multimedia approach in teaching learning process and Programmed learning, Computer Assistant Instruction (CAI) and Computer Aided Learning (CAL).

6. **Planning for Effective Instruction in Science:**

   Year plan, Unit plan, Lesson plan; Learning experiences - Characteristics, Classification, Source and relevance; Teaching Learning Material (TLM) –

Characteristics and importance, Principles to be followed in preparation and usage, Classification, Types, Hardware and Software in TLM; Planning ICT applications.

7. Community and Learning Resources

Using Community Resources - Bringing community to the class, taking class to the community: Field visit; Pooling of Learning Resources; Teaching Learning Material and Improvisation of Apparatus; Science Kits; Laboratory as a Learning Resource; different forms of ICT and its applications in Science Education – Audio aids, Video aids, Educational TV, Use of computer for simulation, internet and Open Learning Resources.

8. Assessment and Evaluation in Sciences:

Test, Examination, Measurement, Assessment and Evaluation; Continuous and Comprehensive Evaluation (CCE), Performance Based Assessment; Assessment Framework - Purpose of assessment, Learning Indicators; Tools and Techniques of Assessment - Written test, Project work, Field trips and field diary, Laboratory work, Interview/Oral test, Journal writing, Concept mapping, Use of Rubrics; Recording and Reporting - Measurement of students' achievements, Grading system, Measurement of process skills, Portfolio: Its role in evaluating students' performance; Assessment as a reflecting process; Assessment of Learning of Students with special needs.

9. Pedagogical Shift in Science:

Pedagogical Shift: Science as Fixed Body of Knowledge to the Process of Constructing; Knowledge; Learners, learning and teachers; Science as inquiry; Inclusion- Science curriculum, Diversity in class approaches, Information and Communication Technology (ICT); Continuous Professional Development (CPD); Role of reflective practices in professional development of science teachers; Content-cum-methodology: Meaning, Concept & Nature.

10. Child Development

Psychology of teaching and learning of Science; Learning disabilities – Difficulties in education of Exceptional and disabled children.

Annexure XXVI

(Enclosure to Notification No. 1479/SS/T9/KGBV/URS/2022, Dt:16.06.2023 of DSE & EO-SPD, TSS, Hyd.)

Syllabus of Written Test for Recruitment of Physical Education Teacher (PET) in KGBVs

Part - I General Studies

1. Current Affairs - Regional, National & International.
2. Indian Constitution; Indian Political System: Governance and Public Policy.
3. Social Exclusion; Rights issues such as Gender, Caste, Tribe, Disability etc., and inclusive policies.
4. Society Culture, Civilization Heritage. Arts and Literature of India and Telangana
5. General Science; India's Achievements in Science and Technology
6. Environmental Issues; Disaster Management- Prevention and Mitigation Strategies and Sustainable Development.
7. Economic and Social Development of India and Telangana.
8. Socio-economic, Political and Cultural History of Telangana with special emphasis on Telangana Statehood Movement and formation of Telangana state.

Part-II: General English

1. Parts of speech
2. Tenses
3. Types of sentences
4. Articles and prepositions
5. Degrees of Comparison
6. Direct speech and indirect speech
7. Clauses
8. Voice - Active and passive voice
9. Use of phrases
10. Comprehension of a prose passage
11. Composition
12. Vocabulary

Part III: History, Principles and Foundations of Physical Education

- **Introduction**: Meaning, Definition and Scope of Physical Education, Aims and Objectives of Physical Education, Importance of Physical Education in present era.
- **Historical Development of Physical Education**: Greece, Germany, British Period (Before 1947), Physical Education in India (After 1947), Contribution of Akhadas and Vyayamsalas, H.V.P.Mandals, Institutions / Bodies in Physical Educations and Sports: YMCA, LNIPE, NSNIS, IOA, SAI,SAF, SGF, PYKKA, KHELO INDIA & FIT INDIA programme, RGKA, SATS, Physical Education & Sports Universities.
- **Policies, Schemes, Awards**: Bharata Ratna, Padmasri, Padmabhushan, Padmavibhushan, Arjuna, Dronacharya, Rajiv Khel Ratna, Ekalavya, Jhansi Laxmibai, Abhimanya,, Trophies/ Cups in Physical Education and Sports at State/National level.
- **Foundations of Physical Education**: Philosophical foundation: Idealism, Pragmatism, Naturalism, Realism, Humanism, Existentialism and Indian Philosophy and Culture. Fitness and wellness movement in the contemporary perspectives, Sports for all and its role in the maintenance and promotion of fitness.
- **Principles of Physical Education**: Biological Growth and development, Gender Difference: Physical, Physiological & Anthropometric (Sheldon and Kretchmer)

Part - IV: Anatomy and Physiology

- **Introduction**: Meaning and Definition of Anatomy, Physiology and their importance in Physical Education. Structure, function and division of cell. Tissues: Functions and types of Tissues. Structural and functional classification of Muscles. Functional and muscles properties and functions of skeletal muscles.
- **Skeletal System:** Structure of bone. Axial and Appendicular Skeletal system, Types or classification of Bones and Structural and functional classification of Joints.
- **Fundamentals Physiology**: Types of Muscle Contractions, Posture: Meaning, Types and Importance of good posture. Fundamental concepts: Angle of Pull, All or None Law, Reciprocal Innervations.
- **Respiratory system**: Structure of respiratory system Mechanism of Respiration (Internal and External). Role of Oxygen in Physical Training, Oxygen Debt, Second wind, Lung capacity, Vital capacity, Tidal Volume, Residual volume.
- **Blood and circulatory system**: Constituents of blood and their functions, Blood groups, structure of the heart, circulation of blood: Pulmonary, Systemic and General circulation. Blood pressure.
- **Digestive system**: structure and functions of the digestive system, Process of Digestion.

- **Nervous system**: Organs of Nervous System, Structure and functions of Brain and Spinal cord.
- **Endocrine System**: Functions of Glands, Pituitary, Thyroid, Parathyroid, Adrenal and Pancreas.
- **Excretory system**: Structure and Functions of the Kidney and the Skin
- Effects of training on cardiovascular system, respiratory system, muscular system; Fatigue and performance in sports

Part-V: Educational Technology and Methods of Teaching in Physical Education

- **Introduction**: Meaning and Definition of Education, Technology and Educational Technology, Objectives of Educational Technology and importance of Educational technology. Types of Education: - Formal, Informal and Non-Formal education, Educative Process, Devices and their importance in Teaching
- **Teaching Techniques and Teaching Aids**: Teaching Technique, Lecture method, Command method, Demonstration method, Imitation method, Part method. Whole method and Whole Part - Whole method. Presentation Technique: Personal and technical preparation, Command - Meaning of command, types of Command - Rhythmic and response command, uses of command in different situations. Teaching Aids - Meaning and Importance of teaching aids, Types of Teaching aids: - Audio, Visual, Audio visual aids, Chalk board, Digital boards, Pin boards, Charts, Model, Slide projector, Motion picture.
- **Tournaments**: Meaning of tournament and types of tournaments Rotation Method, Stair case method - Knock-out (Elimination), League (Round Robin), Knock-out cum league, League cum knock-out, Double league, Double knockout, Challenge. Method of drawing Fixtures: Seeding, Special Seeding. Intramural and Extramural and their importance, National Sports Day.
- **Lesson Planning and Teaching Innovations**: Lesson Planning - Meaning, Type, importance of lesson plan. General, particular / specific / coaching lesson plan. Various parts of lesson plan.

Part-VI: Olympic Movement

- **Origin of Olympic Movement**: Aims of Olympic movement, the early history of the Olympic movement. The significant stages in the development of the modern Olympic movement, Educational and Cultural values of Olympic movement. Origin and History of ancient Olympic games.
- **Modern Olympic Games**: Significance of Olympic Ideals, Olympic Rings, Olympic Flag, Ceremonial Flag, Olympic Symbol, Olympic Protocol for member countries, Queens Baton, Olympic Torch and protocol of Modern Olympics Inaugural and valedictory functions.

- **Different Olympic Games**: Para Olympic Games, Summer Olympics, Winter Olympics, Youth Olympic Games.
- **Committees Of Olympic Games**: International Olympic Committee Structure and Functions, National Olympic committees and their role in Olympic movement, Olympic medal winners of India till to date.

Part - VII: Kinesiology and Biomechanics

- **Introduction to Kinesiology and Sports Biomechanics**: Meaning and Definition of Kinesiology and Sports Biomechanics, Importance of Kinesiology and Sports Biomechanics in Physical Education and Sports, Terminology of Fundamental Movements, Planes and Axes, Gravity, Base, Centre of Gravity, Equilibrium, Line of Gravity.
- **Mechanical Concepts**: Force: Meaning, definition, types and its application in sports. Lever: Meaning, definition, types and its application in sports. Newton's Laws of Motion and their application in sports. Projectile: Factors influencing projectile trajectory.
- **Kinematics And Kinetics Of Human Movement**: Linear Kinematics - Distance and Displacement, Speed and Velocity, Acceleration.
- **Angular Kinematics**: Angular Distance and Displacement, Angular Speed and Velocity, Angular Acceleration.
- **Linear Kinetics**: Inertia, Mass, Momentum, Friction.
- **Angular Kinetics**: Moment of Inertia, Couple, Stability.

Part-VIII: Health Education and Environmental Studies

- **Health Education**: Definition of Health, Health Education. Aims, objectives and Principles of Health Education. Concepts of health: Biomedical, ecological and holistic concepts. Dimensions of Health: physical, mental and social dimensions. Factors affecting Health, School Health Programme: Health Instructions, Health Supervision, Health Service. Balanced diet, constituents of balanced diet.
- **Health Problems in India**: Communicable diseases: Chickenpox, Measles, Mumps, Influenza, Whooping cough, Typhoid, Malaria, Swine flu, Dengue and AIDS. Non-Communicable Diseases: Obesity, Hypertension, Stroke, Diabetes. Malnutrition. Other problems: Explosive Population, Personal and Environmental Hygiene for schools, Nutritional service, Health appraisal, Health record, Healthful school environment, first-aid and emergency care.
- **Environmental Science**: Definition, Scope, Need and Importance of environmental studies, Concept of environmental education. Celebration of various days in relation with environment. Swatch Bharat programme. Pollution of Plastic bags / covers, Role

of school in environmental conservation and sustainable development. Types of pollution- Air Pollution, Water Pollution, Soil Pollution, Noise Pollution & Thermal Pollution.

Part - IX: Measurement and Evaluation in Physical Education

- **Introduction to Test, Measurement Evaluation**: Meaning of Test, Measurement & Evaluation in Physical Education, Need & Importance of Test, Measurement & Evaluation in Physical Education, Principles of Evaluation, Criteria of good Test.
- **Classification and Administration of Test**: Classification of Tests, Administration of test: Pre, During and post-test, Methods of Scoring test.
- **Physical Fitness Tests**: AAHPER youth fitness test, JCR test, Cooper's 12-minute run/ walk test, Harward Step test, Indiana Motor Fitness Test, Barrow motor ability test.
- **Sports Skill Tests**: Lockhart and McPherson badminton test, Johnson basketball test, McDonald soccer test, Russell - Lange Volleyball test, Schmithals French Field Hockey test.

Part - X: Recreation and Leisure Management

- **Basics of Recreation**: Meaning, Definition of Recreation and Leisure Management, Importance, Values of Recreation, Principles of Recreation. Fundamental modes of Recreation, qualities and qualifications of Leaders of Recreation.
- **Recreation and Play**: Theories of Recreation, Theories of Play, Therapeutic Recreation, Therapeutic use of activity, Recreation for the life, Role of recreation and leisure on the human development.
- **Types of Recreational Activities**: Indoor, Outdoor games, Music, Dance, Picnics and Excursions.
- **Recreational Agencies**: Individual and Home agencies, Government Agencies, Voluntary Agencies, Private Agencies, Commercial Agencies.

Part – XI: Sports Training

- **Introduction to Sports Training**: Meaning and Definition of Sports Training, Aims and Objective of Sports Training, Principles of Sports Training.
- **Methods of Sports Training**: Continuous training, Interval training, Repetition training, Fartlek training, Resistance training, Circuit training, Plyometric training. Warm-up and warm-down,
- **Athletic diet**: Pre competition, during competition and post competition.
- **Training Components, Meaning & Definition and their development methods**: Speed, Strength, Endurance, Co-Ordination and Flexibility.

- **Training Process**: Load: Definition and Types of Load. Principles of Intensity and Volume of Load. Meaning and methods of Technical Training and Tactical Training.
- **Training program and planning**: Periodization - Meaning, Aims and types of Periodization: Preparatory, Competition, Transitional. **Planning**: Training session, Talent Identification and Development.

Part-XII: Concepts of Wellness Management

- **Wellness**: Definition and scope of wellness- Wellness continuum and health - Dimensions of wellness - Physical Wellness - Emotional Wellness Social Wellness - Spiritual wellness - Intellectual wellness and Environmental wellness.
- **Exercise and Wellness**: Physical wellness, exercise and physical health of different systems of human body, lifestyle diseases in relation to inactivity, Nutrition and exercise to physical wellness.
- **Stress Management**: Stress: Definition of Stress, Stress and Emotional health, Stress and physical health- Mechanism of stress and related degenerative diseases- Inter dependence of Spiritual wellness, Social wellness and Emotional wellness- Stress management techniques.
- **Fitness and Body Composition**: Health fitness components, body composition, muscular endurance, strength, Cardio Vascular fitness and flexibility, importance of cardio respiratory endurance. Obesity and health risk factors, childhood obesity and problems. Body composition indicators and measurements.

Part - XIII: Sports Psychology and Sociology

- **Introduction**: Meaning, Definition, Importance and scope of Sports Psychology. Characteristics of Various Stages of growth and development. Individual differences. Heredity and environment. Dynamics of Human behaviour, Play and theories of Play.
- **Learning, Personality, Motivation**: **Learning**: Types of Learning Theories of learning, Laws and principles of learning. Learning curve. Transfer of Learning. **Personality** - Meaning and definition of personality, characteristics of personality, Dimension of personality, Personality and Sports performance. **Motivation -** Meaning, Definition and importance of Motivation. Types of Motivation: Intrinsic & Extrinsic, Motivation techniques and their impact on sports performance. Attitude, interest, cognition, Emotions, Aggression, Anxiety and their effects on Sports performance. Mental Preparation Strategies: Attention, focus, Self- talk, Relaxation, Imaginary.
- **Relation between Social Sciences & Physical Education**: Meaning, Definition and Importance of Sociology, Orthodoxy, customs, culture, effects of culture on people life style. Tradition Festivals and sports. Socialization through Physical Education their role in promoting Physical Education and education. participation of both the men and women, Social integration through physical education

- Different methods of studying: Observation / Inspection method, Questionnaire method and Interview method.

Part - XIV: Sports Medicine, Physiotherapy and Rehabilitation

- **Sports Medicine**: Meaning, Definition, and Importance of Sports Medicine. Role of Physical Education Teachers and Coaches in Athletes Care and Rehabilitation. Common sports injuries and their prevention. **First Aid**: Definition of First Aid, **DRABC** formula (Danger, Response, Airways, Breathing and Circulation), **Artificial respiration technique**: Mouth to mouth, Mouth to nose respiration, CPR (Cardio Pulmonary Resuscitation). Treatments: Laceration, Blisters, Contusion, Strain, Sprain, Fracture, supports. Dislocation and Cramps. **Bandages**: Types of Bandages, Taping and supports
- **Physiotherapy**: Definition: Guiding principles of physiotherapy, Importance of physiotherapy. **Treatment Modalities**: Electrotherapy, infrared rays, Ultraviolet rays, short wave diathermy, ultra sound.
- **Hydrotherapy and Massage**: Hydrotherapy: Meaning and Methods, Cryotherapy, Thermo therapy, Contrast Bath, Whirlpool Bath, Steam Bath, Sauna Bath, Hot Water Fomentation. Massage: Meaning and importance of massage, Indications and contraindications of contraindications of massage. Types of Manipulation, Physiological effects of Massage.
- **Therapeutic Exercise**: Definition, Principles and Importance of Therapeutic Exercises. Classification of Therapeutic exercise: Passive Movements (Relaxed, Forced and passive stretching) active movements (concentric, Eccentric and static). Free Mobility Exercise for Shoulder, Wrist, Fingers, Hip, Ankle, Foot joints and Neck exercises.

Part - XV: Sports Management

- **Concept of Management**: Meaning, Definition, Scope, concept and importance of Sports Management. Functions of management: Planning, organising, staffing, directing and controlling.
- **Leadership**: Meaning, Definition & Elements of Good leadership. Leadership styles, methods. Forms of Leadership: Autocratic, Laissez-faire, Democratic, Benevolent and Dictator. Qualities of administrative leader, Preparation of administrative leader & Effects of Good Leadership on Organizational performance.
- **Financial Management**: Financial management in Physical Education & sports in schools, Colleges and Universities. Criteria of good budget, Steps of Budget making. Model budget for a school. Procedures for purchases and constructions. Records and Registers.
- **Sports Management**: Sports Management in Schools, colleges and Universities. Planning, Directing and Controlling school, college and university sports programmes.

Establishing a Reporting system, Evaluation, rewards and punishment system. Event management: Organisation of major sports event.

Part - XVI: Concepts of Yoga

- **Introduction**: Meaning, Definition & Scope of Yoga, Aims, Objectives and functions of Yoga, Yoga practices in Upanishads and yoga sutra, Modern Trends in Yoga, Place and importance of Yoga in Physical Education and Sports.
- **Early Yoga Practices**: Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi. Streams of Yoga Practices: Hatha Yoga, Karma Yoga, Bhakti Yoga, Raja Yoga, Jnana Yoga.
- **Basic Yogic Methods**: Asana: Classification of Asanas, Sitting, Standing, Lying, Inverted asanas. Benefits of Asanas: Effects of Asanas on general health. Pranayama: Importance & impact on Muscular, Cardio Respiratory and Nervous System. Relaxation and meditation: Importance & impact on body at work and body at rest. Bandhas: Jalandhara, Mula, Udyana. Mudras: Chin, Yoga, Aswini, Anjali, Brahma Mudra. Kriyas: Neti, Nauli, Kapalabhati, Trataka, Dhauthi, Bhastrika.
- **Yoga Education**: Yoga Education for Youth Empowerment and human resource development. Difference between yogic practices and physical exercises, Yoga education centers in India and abroad, Competitions in Yoga Asanas.

Part - XVII: Officiating and Coaching

- **Introduction of Officiating and coaching**: Definition of officiating and coaching, Importance and principles of officiating, Relationship of Official and Coach with the Management, players and spectators, Measures of improving the standards of officiating and coaching.
- **Coach as a Mentor**: Duties of coach in general, pre, during and post game. Philosophy of coaching, responsibilities of a coach on and off the field, Psychology of coach in competition and coaching.
- **Duties of Official**: Duties of official in general, pre, during and post game in (Hockey, Football, Handball, Volleyball, Basketball, Table Tennis, Kabaddi, Kho- Kho, Throwball, Lawn Tennis, Badminton, Ball Badminton, Cricket, Softball and Tennikoit. Mechanism of officiating, position, Signals and movement, Ethics of officiating.
- **Qualities and Qualifications of Coach and Official**: Qualities and qualifications of good coach and good official, Layout of courts / fields and Rules of games, Layout of standard Track & Field and Rules, Eligibility rules of Inter schools and Intercollegiate tournaments.

Part - XVIII: Research and Statistics in Physical Education

- **Introduction to Research**: Definition of Research, Need and importance of Research in Physical Education and Sports. Classification of Research, Meaning of Research Problem, Location and criteria of Selection of Problem, Formulation of a Research Problem, Limitations and Delimitations.
- **Methods of Research**: Various methods of Research, need for surveying related literature, Literature Sources, Research Proposal.
- **Basics in Statistics**: Statistics: Meaning, Definition, Nature, Importance and its Types. Raw Score: Grouped Data, Un Grouped Data. Grouped Data: Discrete and Continuous Series. Construction of frequency Table: Class Intervals, Class Distribution. Normal Probability curve, Skewness and kurtosis. Graphical Presentation: Histogram, Bar Diagram, Frequency Polygon, Ogive curve, Pie Diagram.
- **Statistical Methods in Physical Education and Sports**: **Measures of Central Tendency**: Mean Median and Mode-Meaning, Definition, Importance, Advantages, Disadvantages and Calculation from Group and Ungrouped data. **Measures of Variability**: Meaning, importance. Computing Range, Mean Deviation, Quartile Deviation, Deciles, Percentile and Standard Deviation. **Co-relation**: Computing Karl Pearson Product Moment Co-relation and Karl Spearman Rank Order co-relation.