

# SSC CGL 2013 Preliminary Exam Question Paper

## PART - A : GENERAL INTELLIGENCE & REASONING

1. x goes 15 metres North, then turns right and walks 20 metres, then again turns right and walks 10 metres then again turns right and walks 20 metres. How many metres is he from his original position?  
(A) 5 m (B) 10 m  
(C) 15 m (D) 20 m
2. A watch reads 7:30. If the minute hand points West, then in which direction will the hour hand point?  
(A) North (B) North East  
(C) North West (D) South East

**Directions :** In question nos. 3 to 5, from the given alternative words, select the word which *cannot* be formed using the letters of the given word :

3. PENULTIMATE  
(A) PEANUT (B) MINUTE  
(C) ELIMINATE (D) LIME-TEA
4. PROCRASTINATE  
(A) PATTERN (B) TRACTOR  
(C) PRINTED (D) PAINTER
5. ADOLESCENT  
(A) ENCLOSE (B) DONATE  
(C) SECRET (D) LEAST
6. If SPANK is coded as PSNAK, then THROW is coded as  
(A) HTWOR (B) HTWRO  
(C) HTROW (D) HTORW
7. If ANCIENT is coded as 2516859 and NATURE is coded as 529048, then TRAIN will be coded as  
(A) 94285 (B) 92456  
(C) 94265 (D) 94168

8. If BLUE is written as EUBL, then BULB is written as  
(A) BLUB (B) BBUL  
(C) BBLU (D) BLBU
9. 40% of 1620 + 30% of 960 = ? % of 5200  
(A) 12 (B) 24  
(C) 16 (D) 18
10. Which of the following interchange of signs would make the given equation correct?  
 $2 \times 3 + 6 - 12 \div 4 = 17$   
(A)  $\times$  and  $+$  (B)  $+$  and  $-$   
(C)  $+$  and  $\div$  (D)  $-$  and  $\div$
11. 'B' stands for addition, 'G' stands for subtraction, 'E' stands for multiplication, 'C' stands for division, 'D' stands for equal to, 'A' stands for greater than, 'F' stands for less than. In each of the four alternatives, only one expression is correct according to the letter symbol. Identify that expression.  
(A) 15 C 3 B 2 A 6 E 2  
(B) 15 B 2 G 5 A 4 G 4  
(C) 15 C 3 B 2 D 6 B 1  
(D) 15 B 3 D 4 E 6
12. Identify the symbols to be inserted to make the expression correct.  
 $24 \Delta 4 \Delta 5 \Delta 4$   
(A)  $\times + \times$  (B)  $= \times +$   
(C)  $\times + =$  (D)  $+ = \times$

**Directions :** In question nos. 13 to 18, find the related word/number from the given alternatives.

13. Video : Cassette :: Computer : ?  
(A) Files (B) Floppy  
(C) Bits (D) Adit
14. Glucometer : Blood Sugar :: Sphygmomanometer : ?  
(A) Earthquake  
(B) Blood Pressure  
(C) Atmospheric Pressure  
(D) Specific Gravity

15. Behaviour : Psychology :: Plant : ?  
 (A) Plant (B) Botany  
 (C) Zoology (D) Physiology
16. Mitochondria : Energy :: DNA : ?  
 (A) Inheritance (B) Reproduction  
 (C) Locomotion (D) Immunity
17. Desert : Mirage :: Ocean : ?  
 (A) El-Nino (B) Whale  
 (C) Blizard (D) Hail
18.  $525 : 25 :: 315 : ?$   
 (A) 10 (B) 15 (C) 5 (D) 25

**Directions :** In question nos. 19 to 24, find the odd word/number/letters/number pair from the given alternatives.

19. (A)  $\frac{3}{7}$  (B)  $\frac{7}{2}$  (C)  $\frac{4}{13}$  (D)  $\frac{13}{16}$
20. (A) Marine (B) Ocean  
 (C) Navigation (D) Sea
21. (A) ZYX (B) FED  
 (C) NML (D) GHI
22. (A) XZY (B) MON  
 (C) PRQ (D) EAC
23. (A) 1-5 (B) 4-20  
 (C) 5-65 (D) 7-35
24. (A) 46 - 10 (B) 42 - 33  
 (C) 20 - 38 (D) 91 - 12

**Directions :** In question nos. 25 and 26, arrange the given words a meaningful and ascending order and select the option indicating the correct order.

25. 1. Venus 2. Earth 3. Mars  
 4. Mercury 5. Jupiter  
 (A) 4, 2, 1, 3, 5 (B) 4, 2, 1, 5, 3  
 (C) 4, 1, 2, 3, 5 (D) 4, 1, 2, 5, 3
26. 1. Pages 2. Book rack 3. Library  
 4. Books 5. Catalogue.  
 (A) 2, 5, 4, 3, 1 (B) 1, 5, 4, 3, 2  
 (C) 1, 4, 2, 5, 3 (D) 1, 2, 4, 5, 3

27. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

ab         babc         ab         b             bcb         b

- (A) c b c a a (B) c a b a c  
 (C) a b c b a (D) a c a c a

28. A series is given, with one term missing. Choose the correct alternative from the given ones.

ABEF, IJMN, ?

- (A) QRVU (B) QRUV  
 (C) QRVW (D) QSVU

**Directions :** In question nos. 29 to 33, find the missing number from the given responses.

29. 0. 6. 24. 60. ? . 210

- (A) 117 (B) 119  
 (C) 120 (D) 153

30. 

49	81	64
4	49	9
25	16	36

- (A) 

10	10	?
6	8	4

 (B) 

?	?	?
4	6	?

 (C) 

11	11	11
12	9	9

 (D) 16

31. 

2	14	21	28
3	21	28	35
4	28	35	42

- (A) 35 and 49 (B) 28 and 42  
 (C) 21 and 42 (D) 49 and 28

32. 

2	3	4
24	39	?
20	30	40

- (A) 44 (B) 49 (C) 50 (D) 56

33. 

7	3	2
4	9	6
2	1	5
39	65	?

- (A) 91 (B) 68 (C) 56 (D) 104

34. 6 boys A, B, C, D, E, F are sitting in a row facing West. D is between A and C. B is just right of C but left of F. E is not at the right end. Who is at the right end ?

- (A) C (B) F (C) D (D) B

35. Y is in the East of X which is in the North of Z. If P is in the South of Z, then in which direction of Y is P ?

- (A) North (B) East  
(C) South-East (D) South-West

36. Kate walks 4 km towards South. She then turns towards her left and walks 8 km more. After that she turns left again and walks another 8 km. Here, she meets her friend coming from the opposite direction and they both stop here. Which direction would she be facing ?

- (A) North (B) South  
(C) East (D) West

**Directions :** In question nos. 37 and 38, two statements are given followed by two/four conclusions I, II, III and IV. You have to consider the two statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements.

37. Statements : I. Some birds are clouds.  
II. Horse is a bird.

Conclusions : I. Some clouds are birds.  
II. Horse is not a cloud.

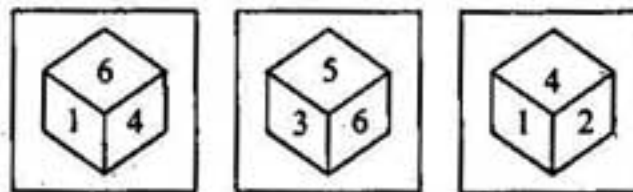
- (A) Conclusion I follows.  
(B) Conclusion II follows.  
(C) Either conclusion I or II follows.  
(D) Neither conclusion I nor II follows.

38. Statements : I. Ravi has five pens.  
II. No one else in the class has five pens.

Conclusions :

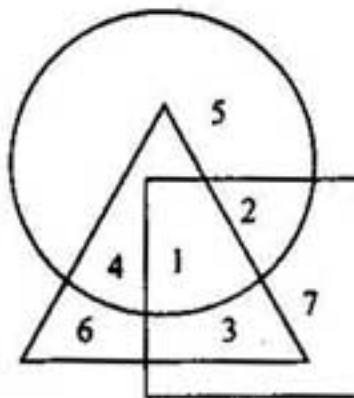
- I. All students in the class have pens.  
II. All students in the class have five pens each.  
III. Some of the students have more than five pens.  
IV. Only one student in the class has exactly five pens.  
(A) Only conclusion I follows.  
(B) Only conclusion III follows.  
(C) Only conclusion II follows.  
(D) Only conclusion IV follows.

39. Three positions of a dice are given. Find out which number is found opposite the number 2 in the given cube.



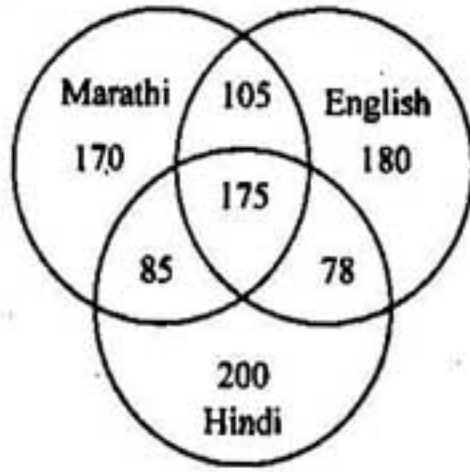
- (A) 6 (B) 5 (C) 3 (D) 1

40. In the following figure  $\circ$  represents hard-working,  $\Delta$  represents sincere and  $\square$  represents intelligent. Find out the hardworking who are intelligent but not sincere.



- (A) 1 (B) 2 (C) 3 (D) 4

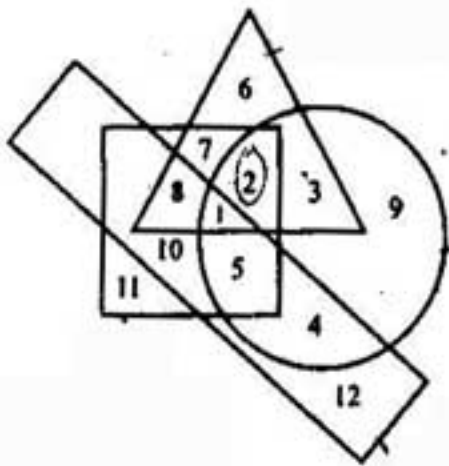
41.



The above diagram shows the survey on a sample of 1000 persons with reference to their knowledge of English, Hindi and Marathi. How many knew only Hindi ?

- (A) 85 (B) 175 (C) 78 (D) 200

42.



In the above figure, the circle stands for employed, the square stands for social worker, the triangle stands for illiterate and the rectangle stands for truthful. Study the figure and answer the questions which region represents literate, employed people who are neither truthful nor social worker.

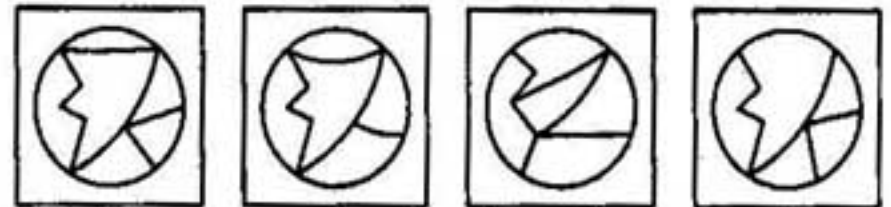
- (A) 11 (B) 4 (C) 9 (D) 10

43. Identify the answer figures from which the piece given in question figure have been cut.

Question figure



Answer figures



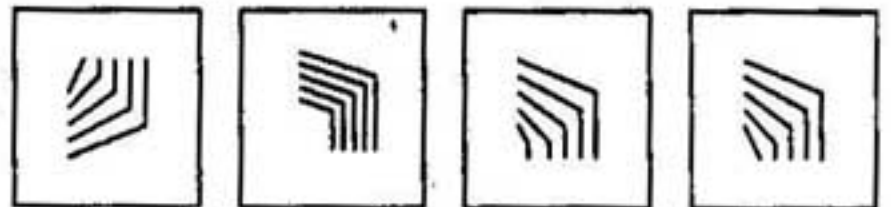
- (A) (B) (C) (D)

**Directions :** In question nos. 44 and 45, which answer figure will complete the pattern in the question figure ?

44. Question figure



Answer figures

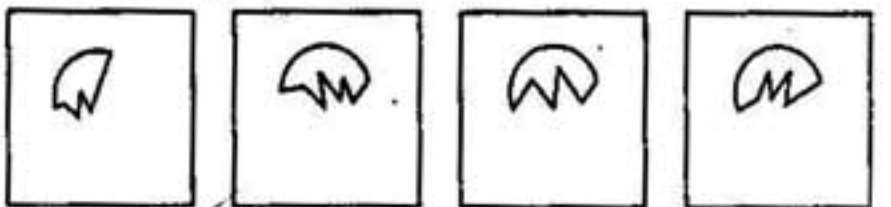


- (A) (B) (C) (D)

45. Question figure

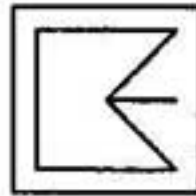


Answer figures

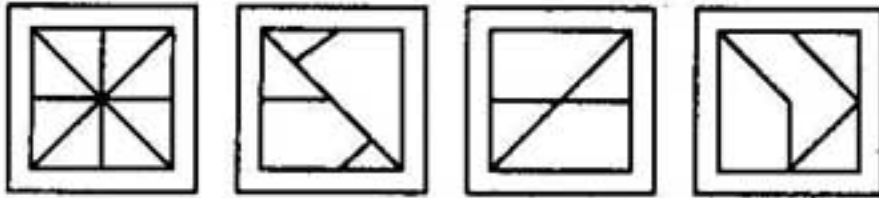


- (A) (B) (C) (D)

46. From the given answer figures, select the one in which the question figure is hidden/embedded.  
Question figure



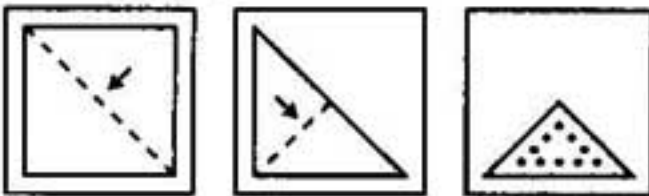
Answer figures



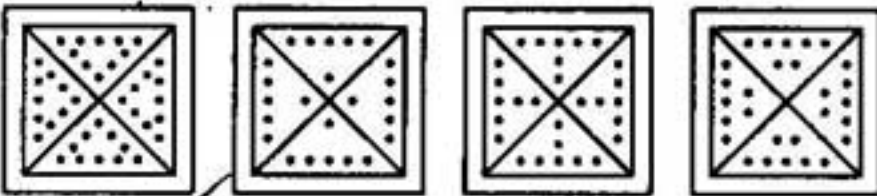
(A) (B) (C) (D)

47. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question figures



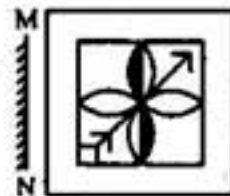
Answer figures



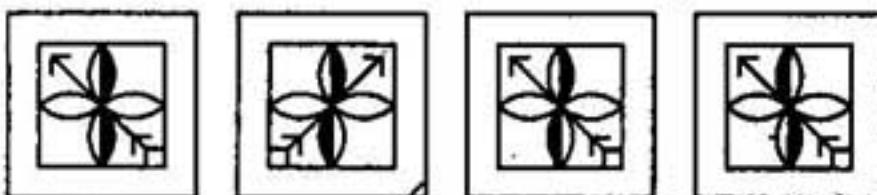
(A) (B) (C) (D)

48. From the answer figures, find out the figure which is the exact mirror image of the question figure, when the mirror is placed on the line 'MN'?

Question figure

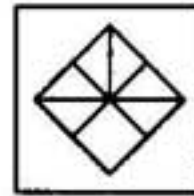


Answer figures



(A) (B) (C) (D)

49. How many triangles are there in the given figure?



(A) 7 (B) 10 (C) 8 (D) 9

50. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g., 'A' can be represented by 00, 12 etc. and 'P' can be represented by 56, 76 etc. Similarly, you have to identify the set for the word 'PARROT'.

MATRIX I

	0	1	2	3	4
0	A	B	C	D	E
1	E	C	A	B	D
2	A	E	B	D	C
3	B	A	D	C	E
4	A	D	C	B	E

MATRIX II

	5	6	7	8	9
5	O	P	Q	R	T
6	P	O	T	Q	R
7	O	P	R	Q	T
8	P	Q	Q	R	T
9	O	Q	P	R	T

(A) 56, 00, 77, 88, 86, 99

(B) 85, 20, 58, 77, 87, 79

(C) 65, 30, 77, 98, 90, 99

(D) 66, 40, 76, 77, 86, 99

## PART – B : GENERAL AWARENESS

51. The Particulate Matter (PM-10) exhaled from the polluted atmosphere is often filtered out during the process of  
(A) Coughing (B) Sneezing  
(C) A and B (D) Urination
52. Sarus crane is the state bird of  
(A) Rajasthan (B) Uttar Pradesh  
(C) Madhya Pradesh (D) West Bengal
53. The Tongariro volcano erupted on November 21, 2012 is in  
(A) Australia (B) Indonesia  
(C) Papua New Guinea (D) New Zealand
54. The Daocheng Yading Airport is located in  
(A) Thailand (B) Philippines  
(C) China (D) Tibet
55. BCCI named the "Indian Cricketer of the year 2011-12" to honour  
(A) Sunil Gavaskar (B) VVS Laxman  
(C) Virat Kohli (D) Yuva Raj
56. "Martyr's Day" is marked on  
(A) January 1 (B) January 15  
(C) January 30 (D) January 9
57. Who won the World Carrom Championship 2012 ?  
(A) Rashmi Kumari  
(B) Mirabai Chanu  
(C) Nishantha Fernando  
(D) Nuthaki Priyanka
58. The animal who can consume more salt among the following is  
(A) Sheep (B) Camel  
(C) Donkey (D) Dog
59. Which of the following is only domestic Airport ?  
(A) Dabolin Airport, Goa  
(B) Srinagar Airport  
(C) Devi Ahilyabai Holkar Airport  
(D) None of the above
60. Tick the correct option with regards to the contribution towards GDP (Gross Domestic Product) from Agriculture  
(A) During 1950-51 (GDP 51.88%) and 2011-12 (GDP 14.01%)  
(B) During 1950-51 (GDP 11.00%) and 2011-12 (GDP 25%)  
(C) During 1990-91 (GDP 29.53%) and 2011-12 (GDP 66.77%)  
(D) During 1980-81 (GDP 35.69%) and 2011-12 (GDP 20.69%)
61. Second India-Africa Forum Summit-2011 was held in  
(A) Eretrea (B) Ethiopia.  
(C) Sudan (D) Nigéria
62. Where did Aurangzeb die ?  
(A) Pune (B) Aurangabad  
(C) Ahmad Nagar (D) Mumbai
63. The principle of maximum social advantage is the basic principle of  
(A) Micro Economics  
(B) Macro Economics  
(C) Fiscal Economics  
(D) Environmental Economics
64. Which Five Year Plan is *not* correct among the following ?  
(A) First 1951-56 (B) Second 1956-61  
(C) Third 1961-66 (D) Fourth 1966-71
65. The ordinary and maximum tolerance limit of sound by human being is  
(A) 50 db to 70 db (decibel)  
(B) 60 db to 80 db (decibel)  
(C) 65 db to 75 db (decibel)  
(D) 70 db to 85 db (decibel)
66. An economic theory is a/an  
(A) Axion (B) Proposition  
(C) Hypothesis (D) Tested hypothesis
67. Indian Special Economic Rules amendment came in the year  
(A) 2000 (B) 2002  
(C) 2004 (D) 2006
68. Provisions of citizenship in Indian Constitution, became applicable in  
(A) 1950 (B) 1949  
(C) 1951 (D) 1952
69. Who gave the title of "Sardar" to Ballabh Bhai Patel ?  
(A) Mahatma Gandhi (B) Vinoba Bhave  
(C) Women of Bardoli (D) Peasants of Gujrat
70. According to Marx, the source of value is  
(A) Capital (B) Land  
(C) Labour (D) None of the above
71. The National Emergency in India declared by the President of India due to the external aggression or armed revolt through  
(A) Article-352 (B) Article-356  
(C) Article-360 (D) Article-368
72. The Community Development Programme was launched in the year  
(A) 1950 (B) 1952  
(C) 1951 (D) 1953
73. What Satyagraha was held at Nagpur in 1923 ?  
(A) Salt Satyagraha.  
(B) Individual Satyagraha  
(C) Ryots Satyagraha  
(D) Flag Satyagraha.
74. Which one of the following is *not* a sect of Buddhism ?  
(A) Mahayana (B) Hinayana  
(C) Digambar (D) Theravad
75. Who was the viceroy when Delhi became the capital of British India ?  
(A) Lord Curzon. (B) Lord Minto  
(C) Lord Hardinge (D) Lord Wavell

76. Who established the Indian Civil Liberties Union in 1936 ?  
 (A) Subhash Chandra Bose  
 (B) Bal Gangadhar Tilak  
 (C) Jawahar Lal Nehru  
 (D) Rajendra Prasad
77. Which of the following was established first ?  
 (A) Banaras Hindu University  
 (B) University of Bombay  
 (C) Aligarh Muslim University  
 (D) University of Allahabad
78. "Yosemite" is a  
 (A) River (B) Peak  
 (C) Waterfall (D) Dam
79. The first Indian Satellite Aryabhata was launched in  
 (A) 1972 (B) 1975  
 (C) 1977 (D) 1979
80. Where is the shore based steel plant located ?  
 (A) Tuticorin (B) Salem  
 (C) Vishakhapatnam (D) Mangalore
81. Which two of the following are connected by the North South corridor ?  
 (A) Srinagar and Kanyakumari  
 (B) Mumbai and Chennai  
 (C) Amritsar and Kolkata  
 (D) Hyderabad and Bhopal
82. The pollutants which move downward with percolating groundwater are called  
 (A) Leachates (B) Pollutates  
 (C) Earthites (D) Percolates
83. Lungs are located in the  
 (A) abdominal cavity (B) pericardial cavity  
 (C) peritoneal cavity (D) pleural cavity
84. Which one of the following is the ideal food for newborn babies ?  
 (A) Water (B) Sugar  
 (C) Honey (D) Milk<sup>1</sup>
85. Transcription means the synthesis of  
 (A) Lipids (B) Protein  
 (C) DNA (D) RNA
86. Hydrochloric acid is secreted by the cells lining the  
 (A) Oral cavity (B) Stomach  
 (C) Ileum (D) Colon
87. Emulsification is  
 (A) breaking fats into small globules  
 (B) digestion of fats  
 (C) absorption of fats  
 (D) storage of fats
88. Taxonomy is a science that deals with  
 (A) Morphology (B) Anatomy  
 (C) Classification (D) Economic uses
89. Which one of the following is responsible for the working of Newton's colour disc experiment ?  
 (A) Formation of pure spectra  
 (B) Formation of impure spectra  
 (C) Persistence of vision  
 (D) Principle of complementary colour
90. The dimension  $MLT^{-2}$  corresponds to  
 (A) force (B) work done  
 (C) acceleration (D) velocity
91. Who is the founder of quantum theory of radiation ?  
 (A) Einstein (B) Bohr  
 (C) Plank (D) S. N. Bose
92. Fiber optics cable used in communication, works on the principle of  
 (A) regular reflection of light  
 (B) diffuse reflection of light  
 (C) refraction of light  
 (D) total internal reflection of light
93. Which was the first electronic computer constructed at the Moore School of Engineering ?  
 (A) EO VAC (B) ONIVAC  
 (C) ENIAC (D) EDSAC
94. Which among the following standard protocols is the most widely used by the Internet ?  
 (A) HTTP (B) TCP/IP  
 (C) SMTP (D) SLIP
95. The outer skin most of the crustaceans are made up of a carbohydrate. This carbohydrate is  
 (A) cellulose (B) galactose  
 (C) chitin (D) starch
96. Rutherford's scattering experiment proved the presence of  
 (A) atoms in all matter (B) electrons in atoms  
 (C) neutrons in atoms (D) nucleus in atoms
97. When a metal is heated in a flame, the electrons absorb energy and jump to higher energy state. On coming back to the lower energy state, they emit light, which we can observe in  
 (A) Raman spectra (B) Absorption spectra  
 (C) Emission spectra (D) Fluorescence
98. Blood pressure may be increased by the excessive secretion of  
 (A) Thyroxine (B) Testosterone  
 (C) Estradiol (D) Estrol
99. The concept of "Green House Gases" was postulated by  
 (A) Joseph Furier (B) Abdul Kalam  
 (C) M. S. Swaminathan (D) Richael Carlson
100. "Bhopal gas tragedy" 1984 is related to  
 (A) Aluminium Phosphide  
 (B) Methyl bromide  
 (C) Methyl isocyanate  
 (D) Carbon dioxide

## PART - C : QUANTITATIVE APTITUDE

101. If  $\frac{1}{\sqrt[3]{4} + \sqrt[3]{2} + 1} = a\sqrt[3]{4} + b\sqrt[3]{2} + c$  and  $a, b, c$  are rational numbers, then  $a + b + c$  is equal to  
 (A) 0 (B) 1 (C) 2 (D) 3
102.  $\frac{1}{1+2^{a-b}} + \frac{1}{1+2^{b-a}}$  is  
 (A)  $a - b$  (B)  $b - a$   
 (C) 1 (D) 0
103. If  $\frac{a}{b} = \frac{4}{5}$  and  $\frac{b}{c} = \frac{15}{16}$ , then  $\frac{18c^2 - 7a^2}{45c^2 + 20a^2}$  is equal to  
 (A)  $\frac{1}{3}$  (B)  $\frac{2}{3}$  (C)  $\frac{3}{4}$  (D)  $\frac{1}{4}$
104. Two circles with centres  $P$  and  $Q$  intersect at  $B$  and  $C$ .  $A, D$  are points on the circles with centres  $P$  and  $Q$  respectively such that  $A, C, D$  are collinear. If  $\angle APB = 130^\circ$ , and  $\angle BQD = x^\circ$ , then the value of  $x$  is  
 (A) 65 (B) 130  
 (C) 195 (D) 135
105.  $C_1$  and  $C_2$  are two concentric circles with centres at  $O$ . Their radii are 12 cm. and 3 cm. respectively.  $B$  and  $C$  are the points of contact of two tangents drawn to  $C_2$  from a point  $A$  lying on the circle  $C_1$ . Then the area of the quadrilateral  $ABOC$  is  
 (A)  $\frac{9\sqrt{15}}{2}$  sq. cm. (B)  $12\sqrt{15}$  sq. cm.  
 (C)  $9\sqrt{15}$  sq. cm. (D)  $6\sqrt{15}$  sq. cm.
106.  $I$  and  $O$  are respectively the in-centre and circumcentre of a triangle  $ABC$ . The line  $AI$  produced intersects the circumcircle of  $\Delta ABC$  at the point  $D$ . If  $\angle ABC = x^\circ$ ,  $\angle BID = y^\circ$  and  $\angle BOD = z^\circ$ , then  $\frac{z+x}{y} =$   
 (A) 3 (B) 1 (C) 2 (D) 4
107. Rana drove 8 miles due west, then 6 miles due north, then 3 miles due east and then 6 more miles due north. The distance between his initial and final position is  
 (A) 13 miles (B) 17 miles  
 (C) 19 miles (D) 21 miles
108.  $ABCD$  is a parallelogram.  $BC$  is produced to  $Q$  such that  $BC = CQ$ . Then  
 (A) area  $(\Delta BCP) =$  area  $(\Delta DPQ)$   
 (B) area  $(\Delta BCP) >$  area  $(\Delta DPQ)$   
 (C) area  $(\Delta BCP) <$  area  $(\Delta DPQ)$   
 (D) area  $(\Delta BCP) +$  area  $(\Delta DPQ) =$  area  $(ABCD)$
109. In  $\Delta ABC$  and  $\Delta DEF$ ,  $AB = DE$  and  $BC = EF$ . Then one can infer that  $\Delta ABC \cong \Delta DEF$ , when  
 (A)  $\angle BAC = \angle EDF$  (B)  $\angle ACB = \angle EDF$   
 (C)  $\angle ACB = \angle DFE$  (D)  $\angle ABC = \angle DEF$
110. The length of the common chord of two circles of radii 30 cm and 40 cm whose centres are 50 cm apart, is (in cm)  
 (A) 12 (B) 24 (C) 36 (D) 48
111. Two chords  $AB, CD$  of a circle with centre  $O$  intersect each other at  $P$ .  $\angle ADP = 23^\circ$  and  $\angle APC = 70^\circ$ , then the  $\angle BCD$  is  
 (A)  $45^\circ$  (B)  $47^\circ$   
 (C)  $57^\circ$  (D)  $67^\circ$
112. If the interior angles of a five-sided polygon are in the ratio of 2 : 3 : 3 : 5 : 5, then the measure of the smallest angle is  
 (A)  $20^\circ$  (B)  $30^\circ$   
 (C)  $60^\circ$  (D)  $90^\circ$



113. The difference of a number consisting of two digits from the number formed by interchanging the digits is always divisible by  
(A) 10 (B) 9 (C) 11 (D) 6
114. The number 323 has  
(A) three prime factors  
(B) five prime factors  
(C) two prime factors  
(D) no prime factor
115. A tyre has 2 punctures. The first puncture alone would have made the tyre flat in 9 minutes and the second alone would have done it in 6 minutes. If air leaks out at a constant rate, how long does it take both the punctures together to make it flat?  
(A)  $1\frac{1}{2}$  minutes (B)  $3\frac{1}{2}$  minutes  
(C)  $3\frac{2}{3}$  minutes (D)  $4\frac{1}{4}$  minutes
116. If 8 men or 12 boys can do a piece of work in 16 days, the number of days required to complete the work by 20 men and 6 boys is  
(A)  $5\frac{1}{3}$  (B)  $6\frac{1}{3}$   
(C)  $8\frac{1}{3}$  (D)  $7\frac{1}{3}$
117. A and B together can do a piece of work in 12 days which B and C together can do in 16 days. After A has been working at it for 5 days and B for 7 days, C finishes it in 13 days. In how many days B could finish the work?  
(A) 48 days (B) 24 days  
(C) 16 days (D) 12 days
118. Three circles of radius  $a, b, c$  touch each other externally. The area of the triangle formed by joining their centres is  
(A)  $\sqrt{(a+b+c)abc}$   
(B)  $(a+b+c)\sqrt{ab+bc+ca}$   
(C)  $ab+bc+ca$   
(D) None of the above
119. If a metallic cone of radius 30 cm and height 45 cm is melted and recast into metallic spheres of radius 5 cm, find the number of spheres.  
(A) 81 (B) 41 (C) 80 (D) 40
120. Chords AB and CD of a circle intersect at E and are perpendicular to each other. Segments AE, EB and ED are of lengths 2 cm, 6 cm and 3 cm respectively. Then the length of the diameter of the circle in cm is  
(A)  $\sqrt{65}$  (B)  $\frac{1}{2}\sqrt{65}$   
(C) 65 (D)  $\frac{65}{2}$
121. For every set of 19 kites sold, a vendor gives 1 kite extra, free of cost. In order to give a discount of 10%, the number of extra kites he should give in a sale of 27 kites to the nearest integer is  
(A) 3 (B) 6 (C) 7 (D) 8
122. A ruby stone was bought for ₹ 1600 at Jaipur. A sum of ₹ 2400 was spent on making a ring with the ruby stone. It was advertised for sale at Bombay for ₹ 7800. If a discount of 10% was given, then the % profit made was  
(A) 55% (B) 68.5%  
(C) 75.5% (D) 80%
123. A shopkeeper buys an article for ₹ 450. He marks it at 20% above the cost price. Find the percentage discount given by him if he sells the article for ₹ 496.80.  
(A) 8% (B) 9% (C) 10% (D) 12%
124. The area of a circle is proportional to the square of its radius. A small circle of radius 3 cm is drawn within a larger circle of radius 5 cm. Find the ratio of the area of the annular zone to the area of the larger circle. (Area of the annular zone is the difference between the area of the larger circle and that of the smaller circle).  
(A) 9 : 16 (B) 9 : 25  
(C) 16 : 25 (D) 16 : 27

125. A man invested  $\frac{1}{3}$  of his capital at 7%,  $\frac{1}{4}$  at 8% and the remainder at 10%. If his annual income is ₹ 561, the capital is

- (A) ₹ 5400 (B) ₹ 6000  
(C) ₹ 6600 (D) ₹ 7200

126. The average age of Ram and his two children is 17 years and the average age of Ram's wife and the same children is 16 years. If the age of Ram is 33 years, the age of his wife is (in years):

- (A) 31 (B) 32 (C) 35 (D) 30

127. A man's pension on retirement from service is equal to half the average salary during last 3 years of his service. His salary from 1-1-1983 is ₹ 380 per month with increment of ₹ 40 due on 1-10-83, 1-10-84 and 1-10-85. If he retires on 1-1-86, what pension does he draw?

- (A) ₹ 205 (B) ₹ 215  
(C) ₹ 225 (D) ₹ 230

128. A person bought 76 cows and sold 20 cows at 15% profit, 40 cows at 19% profit and remaining 16 cows at 25% profit and got a profit of ₹ 6570 as a whole. The cost price of each cow is

- (A) ₹ 450 (B) ₹ 425  
(C) ₹ 420 (D) ₹ 400

129. One side of a square is increased by 30%. To maintain the same area, the other side will have to be decreased by

- (A)  $23\frac{1}{3}\%$  (B)  $76\frac{2}{3}\%$   
(C) 30% (D) 15%

130. Ram travelled 1200 km by air which formed  $\left(\frac{2}{3}\right)$  of his trip. He travelled one-third of the trip by car and the rest by train. The distance (in km) travelled by train was

- (A) 480 (B) 800  
(C) 1600 (D) 1800

131. A policeman goes after a thief who has 100 metres' start, if the policeman runs a kilometre in 8 min, and the thief a km in 10 min, the distance covered by thief before he is over-powered is

- (A) 350 m (B) 400 m  
(C) 320 m (D) 420 m

132. A man borrows ₹ 21000 at 10% compound interest. How much he has to pay equally at the end of each year, to settle his loan in two years?

- (A) ₹ 12000 (B) ₹ 12100  
(C) ₹ 12200 (D) ₹ 12300

133. If  $\frac{4+3\sqrt{3}}{\sqrt{7+4\sqrt{3}}} = A + \sqrt{B}$ , then  $B - A$  is

- (A) -13 (B)  $2\sqrt{13}$   
(C) 13 (D)  $3\sqrt{3} - \sqrt{7}$

134. If the expression  $x^2 + x + 1$  is written in the form  $\left(x + \frac{1}{2}\right)^2 + q^2$ , then the possible values of  $q$  are

- (A)  $\pm \frac{1}{3}$  (B)  $\pm \frac{\sqrt{3}}{2}$   
(C)  $\pm \frac{2}{\sqrt{3}}$  (D)  $\pm \frac{1}{2}$

135. If  $a^2 - 4a - 1 = 0$ , then value of

$$a^2 + \frac{1}{a^2} + 3a - \frac{3}{a}$$

- (A) 25 (B) 30 (C) 35 (D) 40

136. If  $x = \sqrt[3]{a + \sqrt{a^2 + b^3}} + \sqrt[3]{a - \sqrt{a^2 + b^3}}$ , then  $x^3 + 3bx$  is equal to

- (A) 0 (B)  $a$  (C)  $2a$  (D) 1

137. If  $x^2 - y^2 = 80$  and  $x - y = 8$ , then the average of  $x$  and  $y$  is

- (A) 2 (B) 3 (C) 4 (D) 5

138. If  $\sec\theta + \tan\theta = \sqrt{3}$  ( $0^\circ \leq \theta \leq 90^\circ$ ),

then  $\tan 3\theta$  is

- (A) undefined  
 (B)  $\frac{1}{\sqrt{3}}$   
 (C) considered as infinity  
 (D)  $\sqrt{3}$

139. If  $\sin(60^\circ - \theta) = \cos(\psi - 30^\circ)$ , then the value of  $\tan(\psi - \theta)$  is (assume that  $\theta$  and  $\psi$  are both positive acute angles with  $\theta < 60^\circ$  and  $\psi > 30^\circ$ ).

- (A)  $\frac{1}{\sqrt{3}}$  (B) 0 (C)  $\sqrt{3}$  (D) 1

140. The value of

$(1 + \cot\theta - \operatorname{cosec}\theta)(1 + \tan\theta + \sec\theta)$  is equal to

- (A) 1 (B) 2 (C) 0 (D) -1

141. If  $\tan\theta + \cot\theta = 2$ , then the value of  $\tan^n\theta + \cot^n\theta$  ( $0^\circ < \theta < 90^\circ$ ,  $n$  is an integer) is

- (A) 2 (B)  $2^n$  (C)  $2n$  (D)  $2^{n+1}$

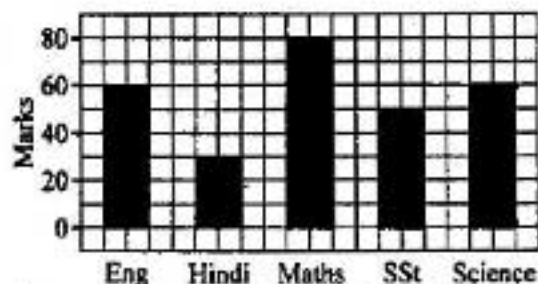
142. A pole stands vertically, inside a scalene triangular park  $ABC$ . If the angle of elevation of the top of the pole from each corner of the park is same, then in  $\Delta ABC$ , the foot of the pole is at the

- (A) centroid (B) circumcentre  
 (C) incentre (D) orthocentre

143. If  $\frac{\sin\theta}{x} = \frac{\cos\theta}{y}$ , then  $\sin\theta - \cos\theta$  is equal to

- (A)  $x - y$  (B)  $x + y$   
 (C)  $\frac{x - y}{\sqrt{x^2 + y^2}}$  (D)  $\frac{y - x}{\sqrt{x^2 + y^2}}$

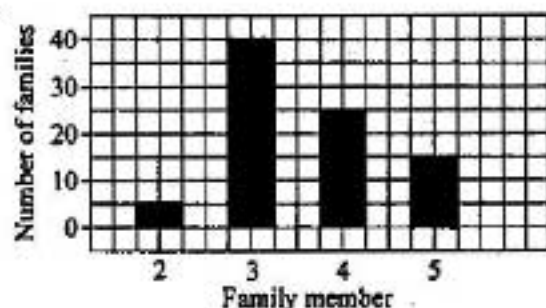
144.



The above bar graph show the marks obtained by a student in an examination. What is the average marks obtained by the student?

- (A) 55 (B) 56 (C) 57 (D) 58

145.



Study the bar graph carefully and answer the following question.

Which type of family is the most common?

- (A) 2 members (B) 3 members  
 (C) 4 members (D) 5 members

The Pie Chart shows the expenditure of a country on various sports during a particular year. Study the graph and answer the question nos. 146 to 148.



146. If the total amount spent on cricket and hockey together is ₹ 80,000, the total amount spent on sports is

- (A) ₹ 1,00,000 (B) ₹ 2,00,000  
 (C) ₹ 2,50,000 (D) ₹ 3,00,000

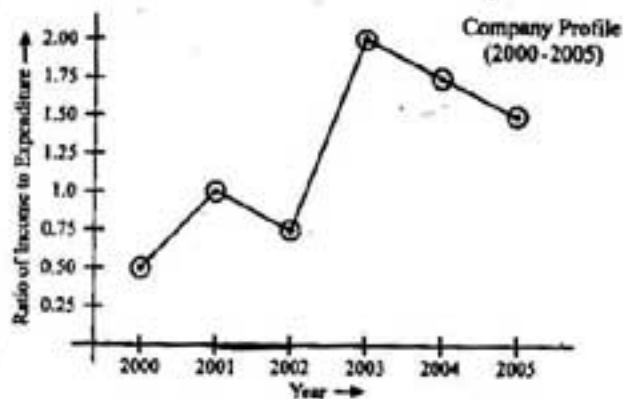
147. How much per cent more is spent on Hockey than that on Golf ?

- (A) 27% (B) 35%  
(C) 37.5% (D) 75%

148. How much per cent less is spent on football than that on cricket ?

- (A)  $22\frac{2}{9}\%$  (B) 27%  
(C)  $33\frac{1}{3}\%$  (D)  $37\frac{1}{2}\%$

Study the following graph and answer the question nos. 149 and 150.



149. Find the percentage decrease in income from 2001 to 2002.

- (A) 50 (B) 33  
(C)  $37\frac{1}{2}$  (D) Data inadequate ✓

150. If the income shows positive growth in every year throughout the period (2000 – 2005), then in how many years the expenditure shows a positive growth ?

- (A) 5 (B) 3 (C) 4 (D) 2 ✓

### FOR VISUALLY HANDICAPPED CANDIDATES ONLY

144. X can complete a work in 80 days and Y in 100 days. They work together for 20 days and then Y leaves the job. The number of days taken by X to complete the work is

- (A) 50 days (B) 33 days  
(C) 22 days (D) 44 days

145. If the length of each side of a square is increased by 2 unit, the area is found to be increased by 20 square unit. The length of a diagonal of the square is

- (A)  $2\sqrt{2}$  unit (B) 4 unit  
(C)  $4\sqrt{2}$  unit (D) 8 unit

146. A dealer sells his goods 30% above the cost price but allows a discount of 15% for cash payment. Find the gain per cent.

- (A) 15% (B) 9%  
(C) 8.5% (D) 10.5%

147. ₹ 9000 is divided among A, B, C such that A may get 5 times as much as B and C gets  $\frac{1}{2}$  of what A and B together get. Then C will receive the amount (in ₹)

- (A) 1000 (B) 3000  
(C) 5000 (D) 6000

148. The average of the two numbers is equal to the average of the reciprocals of the numbers multiplied by product of the numbers. The numbers are

- (A) The problem is not solvable  
(B) The data are not sufficient  
(C) Any two numbers  
(D) None of the numbers

149. A retailer buys 40 pens at the marked price of 36 pens from a wholesaler. If he sells these pens giving a discount of 1%, what is the profit per cent ?

- (A) 9% (B) 10% (C)  $10\frac{1}{9}\%$  (D) 11%

150. Speed of superfast train is more than that of an express train by 15 km/hr. Both the trains start from the same station at the same instant. But the superfast train reaches another station which is 180 km apart, one hour earlier. The speed of the superfast train (in km/hr) is

- (A) 60 (B) 55 (C) 50 (D) 45

## PART - D : ENGLISH COMPREHENSION

**Directions :** In question nos. 151 to 160, a sentence/part of the sentence is underlined. Below are given alternatives to the underlined sentence/part of the sentence at (A), (B) and (C) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (D).

151. It became clear that the strangers were heading into a serious disaster.  
 (A) along (B) towards  
 (C) on (D) No improvement
152. Twenty kms are not a great distance in these days of fast moving vehicles.  
 (A) is not a great distance.  
 (B) are not too great a distance  
 (C) aren't proving a great distance  
 (D) No improvement
153. I adapted a new method to solve the problem.  
 (A) I have been adopted.  
 (B) I adopted.  
 (C) I was adapted  
 (D) No improvement
154. Hoping not to be disturbed, I sat down in my easy chair to read the book, I won as a prize.  
 (A) I had won as a prize.  
 (B) I have won as prize  
 (C) I had to win as a prize  
 (D) No improvement
155. If you are living near a market place you should be ready to bear the disturbances caused by traffic.  
 (A) to bear upon (B) to bear with  
 (C) to bear away (D) No improvement
156. The more they earn, more they spend on luxury items.  
 (A) more they should spend  
 (B) the more they spend  
 (C) the more they ought to spend  
 (D) No improvement
157. You have come here with a view to insult me.  
 (A) to insulting me (B) of insulting me  
 (C) for insulting me (D) No improvement
158. A little rail-road engine was employed by a station yard for doing small pieces of work.  
 (A) was made by a station yard  
 (B) was used at the station yard  
 (C) was employed at the station yard  
 (D) No improvement

159. From an aesthetic point of view, the painting did not appeal to me.  
 (A) From the viewpoint of aesthetics, the painting did not appeal to me  
 (B) The painting had no aesthetic appeal to me  
 (C) From an aesthetic point of view, the painting had a little appeal to me  
 (D) No improvement
160. The child tossed in bed burning with fever.  
 (A) The child in bed, burning with fever tossed  
 (B) The child burning with fever, tossed in bed  
 (C) The child burning in bed tossed with fever  
 (D) No improvement

**Directions :** In question nos. 161 to 167, out of the four alternatives, choose the one which can be substituted for the given words/sentence and indicate it by blackening the appropriate oval [●] in the Answer Sheet.

161. An apartment building in which each apartment is owned separately by the people living in it, but also containing shared areas.  
 (A) condominium (B) multiplex  
 (C) duplex (D) caravan
162. A group of three powerful people.  
 (A) trio (B) tritium  
 (C) trivet (D) triumvirate
163. Operation of the body after death.  
 (A) post-mortem (B) obituary  
 (C) homage (D) mortuary
164. Not allowing the passage of light.  
 (A) oblique (B) opaque  
 (C) optique (D) opulant
165. Science regarding principles of classification.  
 (A) taxidermy (B) taxonomy  
 (C) toxicology (D) classicology
166. A political leader appealing to popular desires and prejudices.  
 (A) dictator (B) tyrant  
 (C) popularist (D) demagogue
167. Enclosed in a small closed space.  
 (A) closophobia (B) clusterophobia  
 (C) claustrophobia (D) liftophobia

**Directions :** In question nos. 168 and 169, four words are given in each question, out of which only one word is correctly spelt. Find the correctly spelt word and mark your answer in the Answer Sheet.

168. (A) conivance (B) connivanse  
(C) connivance (D) conivence
169. (A) maintennance (B) manteinance  
(C) maintenance (D) mentenance

**Directions :** In question nos. 170 to 179, you have a passage with 10 questions. Read the passage carefully and choose the best answer to each question out of the four alternatives and mark it by blackening the appropriate oval (●) in the Answer Sheet.

### PASSAGE CYBER BOGEYS

The cyber-world is ultimately ungovernable. This is alarming as well as convenient; sometimes, convenient because alarming. Some Indian politicians use this to great advantage. When there is an obvious failure in governance during a crisis they deflect attention from their own incompetence towards the ungovernable. So, having failed to prevent nervous citizens from fleeing their cities of work by assuring them of proper protection, some national leaders are now busy trying to prove to one another, and to panic-prone Indians, that a mischievous neighbour has been using the internet and social networking sites to spread dangerous rumours. And the Centre's automatic reaction is to start blocking these sites and begin elaborate and potentially endless negotiations with Google, Twitter and Facebook about access to information. If this is the official idea of prompt action at a time of crisis among communities, then Indians have more reason to fear their protectors than the nebulous mischief-makers of the cyber-world. Wasting time gathering proof, blocking vaguely suspicious websites, hurling accusations across the border and worrying about bilateral relations are ways of keeping busy with inessentials because one does not quite know what to do about the essentials of a difficult situation. Besides, only a fifth of the 245 websites blocked by the Centre mention the people of the Northeast or the violence in Assam. And if a few morphed images and spurious texts can unsettle an entire nation, then there is something deeply wrong with the nation and with how it is being governed. This is what its leaders should be addressing immediately, rather than making a wrongheaded display of their powers of censorship.

It is just as absurd, and part of the same syndrome, to try to ban Twitter accounts that parody despatches from the Prime Minister's Office. To describe such forms of humour and dissent as "misrepresenting" the PMO — as if Twitterers would take these parodies for genuine despatches from the PMO — makes the PMO look more ridiculous than its parodists manage to. With the precedent for such action set recently by the chief minister of West Bengal, this is yet another proof that what Bengal thinks today India will think tomorrow. Using the cyber-world for flexing the wrong muscles is essentially not funny. It might even prove to be quite dangerously distracting.

170. According to the passage, the cyber-world is  
(A) beyond the imagination of people  
(B) outside the purview of common people  
(C) not to be governed  
(D) ungovernable.
171. The author is of the opinion that  
(A) the centre should start negotiations with Google, Twitter and Facebook  
(B) the centre should help the citizens evacuate their city  
(C) the centre should not block the sites  
(D) the centre should arrest the guilty
172. Which of the following is closest to the meaning of 'nebulous' ?  
(A) confused (B) vague  
(C) iridescent (D) glowing
173. The author's seriousness regarding the situation can best be described in the following sentences. Pick the odd one out.  
(A) Our leaders should display their powers of censorship when needed  
(B) If this is the official idea of prompt action at a time of crisis among communities, then Indians have more reason to fear their protectors than the nebulous mischief-maker of the cyber-world  
(C) The politicians deflect attention from their own incompetence  
(D) If a few morphed images and spurious texts can unsettle an entire nation, then there is something deeply wrong with the nation

174. The word 'spurious' means  
 (A) genuine (B) authentic  
 (C) substantial (D) fake
175. The author warns us against  
 (A) not playing false with the citizens  
 (B) dangers inherent in the cyber-world  
 (C) not using the cyber-world judiciously  
 (D) not protecting the citizens from dangerous politicians
176. 'Parody' means  
 (A) twist (B) jeopardize  
 (C) ridicule (D) immitate
177. What is the opposite of 'wrong headed' ?  
 (A) silly  
 (B) sane  
 (C) insane  
 (D) insensible
178. The passage suggests different ways of keeping the public busy with 'inessentials'. Pick the odd one out.  
 (A) By blocking websites which are vaguely suspicious  
 (B) By blaming neighbouring countries across the border  
 (C) By turning the attention of the people to violence in Assam  
 (D) By getting involved in a discourse on bilateral relations
179. The following is a list of statements made by the author of the above passage. Pick the odd one out.  
 (A) It is absurd to ban Twitter accounts that parody despatches from the Prime Minister's Office  
 (B) Twitterers take these parodies for genuine despatches from the PMO  
 (C) To describe such forms of humour as 'misrepresenting' the PMO makes the PMO look more ridiculous  
 (D) The precedent for such action was set recently by the chief minister of West Bengal

**Directions :** In question nos. 180 to 184, some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the oval [●] corresponding to the appropriate letter (A, B, C). If a sentence is free from error, blacken the oval corresponding to (D) in the Answer Sheet.

180. In India  
 (A) working woman lead a life of dual responsibilities  
 (B) if they are married and have a family.  
 (C) No error.  
 (D)
181. Greatly to our surprise we find the ringleader  
 (A) was lame. (B) No error.  
 (C) (D)
182. They have played a game last week.  
 (A) (B) (C)  
 (D) No error.
183. The teacher made the boys to do the sum  
 (A) all over again. (B) No error.  
 (C) (D)
184. Many overseas students attend colleges  
 (A) in the Great Britain. (B) No error.  
 (C) (D)

**Directions :** In question nos. 185 to 189, sentences are given with blanks to be filled with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four and indicate it by blackening the appropriate oval [●] in the Answer Sheet.

185. Student-parking should be \_\_\_\_\_; students should not be charged to buy parking stickers.  
 (A) fined (B) free  
 (C) costly (D) cheap

186. If you have roses growing in your garden, you can make a lovely \_\_\_\_\_ of flowers at home.

- (A) bouquette (B) buquette  
(C) bouquete (D) bouquet

187. The \_\_\_\_\_ of the middle school is a woman of \_\_\_\_\_.

- (A) Principles, Principal  
(B) Principals, Principal  
(C) Principal, Principle  
(D) Principle, Principals

188. With the changing times, most of the students have become business-like they are \_\_\_\_\_ and want to take only those courses which they find rewarding.

- (A) idealistic (B) pragmatic  
(C) enthusiastic (D) partial

189. 1. John's at \_\_\_\_\_ institute studying French.

2. They're building \_\_\_\_\_ school at the end of our street.

3. Do they live in \_\_\_\_\_ United Kingdom or somewhere else?

- (A) a, the, an (B) the, a, an  
(C) an, a, the, (D) the, an, a

**Directions :** In question nos. 190 to 192, out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.

190. Parsimony

- (A) expenditure (B) bankruptcy  
(C) bribery (D) miserliness

191. Tribulation

- (A) palpitation (B) suffering  
(C) weakness (D) stimulation

192. The Prime Minister goes on the ramparts of the Red Fort to hoist the National flag.

- (A) rompway (B) staircase  
(C) parapet (D) scaffold

**Directions :** In question nos. 193 to 195, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

193. Lunacy

- (A) sanity (B) stupidity  
(C) sensibility (D) insanity

194. Obtuse

- (A) sharp-witted (B) transparent  
(C) timid (D) blunt

195. inadvertently

- (A) secretly (B) accidentally  
(C) completely (D) deliberately

**Directions :** In question nos. 196 to 200, four alternatives are given for the Idiom/Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom/Phrase and mark it in the Answer Sheet.

196. What egged you on to become a social worker?

- (A) urged (B) dampened  
(C) hindered (D) discouraged

197. Many politicians in India are not fit to hold a candle to Mahatma Gandhi.

- (A) superior (B) equal  
(C) inferior (D) indifferent

198. She must be paying through the nose for the face left.

- (A) paying less than necessary  
(B) paying too much  
(C) paying the right amount  
(D) paying reluctantly

199. He is putting the cart before the horse by purchasing furniture before buying a house.

- (A) doing a thing in the wrong way  
(B) doing a thing in the right way  
(C) committing a great crime  
(D) doing things meticulously

200. Casting pearls before swine.

- (A) speaking nice words and convincing them  
(B) offering good things to undeserving people  
(C) uplifting the needy for their welfare  
(D) doing worthwhile things to unknown people