# Sr. Inter Physics Model Paper

Time : 3 Hrs] [Max.Marks :60

**Note :** *Read the following instructions carefully.*

1. *Answer all questions of 'Section–A'. Answer any six questions in 'Section – B' and any two questions in 'Section – C'.*
2. *Answer all the questions in 'Section – A' in a sequence.*
3. *Draw labeled diagrams wherever necessary for questions in 'Section – B' and 'C'. No need of drawing any diagram in 'Section – A'.*

## SECTION – A

**I.** ***Answer all questions. Each question carries TWO marks.*** **10 × 2 = 20**

1. What is dispersion? Which colour gets relatively more dispersed?
2. Define magnetic declination.
3. A bar magnet of length 0.1 m and with a magnetic moment of 5 $Am^2$ is placed in a uniform magnetic field of intensity 0.4 T with its axis making an angle of 60° with the field. What is the torque on the magnet?
4. Distinguish between ammeter and voltmeter?
5. A transformer converts 200 V ac into 2000 V ac. Calculate the number of turns in the secondary if the primary has 10 turns.
6. Give two uses of infrared rays?
7. Write down deBroglie's relation and explain the terms there in.
8. What is "Photo electric effect" ?
9. Draw the circuit symbols for p-n-p and n-p-n transistors.
10. Define modulation. Why is it necessary?

## SECTION – B

***II. Answer any SIX in 75 words each. Each question carries FOUR marks.*** **6 × 4 = 24**

11. Explain the formation of a mirage?
12. How do you determine the resolving power of your eye?
13. Derive an expression for the intensity of the electric field at a point on the equatorial plane of an electric dipole.
14. a) A 12 PF capacitor is connected to a 50 V battery. How much electrostatic energy is stored in the capacitor?

    b) In a hydrogen atom the electron and proton are at a distance of 0.5 Å. Find the dipole moment of the system.
15. State and explain Biot-Savart law.

16. Obtain expression for the emf induced across a conductor which is moved in a uniform magnetic field which is perpendicular to the plane of motion.

17. Explain the distance of closest approach and impact parameter.

18. What is rectification? Explain the working of a full wave rectifier.

## SECTION – C

***III. Answer any TWO in 300 words each. Each question carries EIGHT marks.*** **2 x 8 = 16**

19. What is Doppler effect? Obtain an expression for the apparent frequency of sound heard when the source is in motion with respect to an observer at rest?

20. State Kirchhoff's laws for electrical network. Using these laws deduce the condition for balancing in a Wheatstone bridge.

    Three identical resistors are connected in parallel and total resistance of the circuit is R/3. Find the value of each resistance.

21. Explain the principle and working of a nuclear reactor with the help of a labelled diagram.

    If one microgram of $^{235}_{92}U$ is completely destroyed in an atom bomb, how much energy will be released?

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