BOARD OF INTERMEDIATE EDUCATION (AP)

HALF YEARLY EXAMINATIONS - 2021

SENIOR INTER PHYSICS

MODEL PAPER (English Version)

Time: 3 Hours **Max.Marks: 60**

SECTION - A

Note: i) Very short answer type questions. **10 × 2 = 20**

  ii) Answer All questions.

  iii) Each question carries 2 marks.

1. Define Power of a Convex lens. What is its unit?

2. What is Myopia? How can it be corrected?

3. A small angled prism of $4°$ deviates a ray through $2.48°$. Find the refractive index of the prism.

4. A circular coil of radius 'r' having N turns carries a current 'i'. What is its magnetic moment?

5. What is the relation between the permittivity of free space ε_0, the permeability of free space μ_0 and the speed of light in vacuum?

6. How do you convert a moving coil galvanometer into an ammeter?

7. What is the importance of Oersted's experiment?

8. What happens to compass needle at the Earth's pole?

9. Define magnetic declination.

10. Magnetic lines form continuous closed loops. Why?

SECTION - B

Note: i) Short answer type questions. **6 × 4 = 24**

  ii) Answer any six questions.

  iii) Each question carries 4 marks.

11. Define critical angle. Explain total internal reflection using a neat diagram.

12. Explain the formation of a mirage.

13. Explain Doppler effect in light. Distinguish between red shift and blue shift.

14. Derive an expression for the intensity of the electric field at a point on the axial line of an electric dipole.

15. Define intensity of electric field at a point. Derive an expression for the intensity due to a point charge.

16. Derive an expression for the capacitance of a parallel plate capacitor.

17. Find the magnetic induction due to long current carrying conductor.

18. Derive an expression for the magnetic dipole moment of a revolving electron.

SECTION - C

Note: i) Long answer type questions.   **2 × 8 = 16**

    ii) Answer any two questions.

    iii) Each question carries 8 marks.

19. **a)** How are stationary waves formed in closed pipes? Explain the various modes of vibration and obtain relations for their frequencies.

    b) A closed organ pipe of 70 cm long is sounded. If the velocity of sound is 331 m/s. What is the fundamental frequency of vibration of the air column?

20. What are beats? Obtain an expression for the beat frequency. Where and how are beats made use of?

21. State the working principal of potentiometer. Explain with the help of circuit diagram how the emf of two primary cells are compared by using the potentiometer.

Writer: K.S.S.Rajasekhar