Part - III
PHYSICS, Paper - II
(English Version)

Time : 3 Hours

Max. Marks : 60

SECTION – A

$10\times2=20$

Note :- (i) Answer ALL Questions.

(ii) Each Question carries Two marks.

(iii) All are very short answer type questions.

1. What is the principle of a moving coil galvanometer?

2. Define magnetic inclination or angle of dip.

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

4. Classify the following materials with regard to magnetism: Manganese, Cobalt, Nickel, Bismuth, Oxygen, Copper.

5. What important fact did Millikan's experiment establish?

6. A transformer converts 200 V ac into 2000 V ac. Calculate the number of turns in the secondary if the primary has 10 turns.

7. If the wavelength of electromagnetic radiation is doubled, what happens to the energy of photon?

8. Give examples of "photosensitive substances". Why are they called so?

9. What is sky wave propagation?

10. Write the truth table of NAND gate. How does it differ from AND gate?

SECTION – B

Note :- (i) Answer ANY SIX questions.
(ii) Each question carries FOUR marks.
(iii) All are of short answer type questions.

11. Distinguish between half – wave and full – wave rectifiers.

12. Describe the ways in which Eddy currents are used to advantage.

13. Write a short note on De Broglie's explanation of Bohr's second postulate of quantization.

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

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

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

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

18. State Gauss's law in electrostatics.

SECTION – C

Note :- (i) Answer ANY TWO questions.
(ii) Each question carries EIGHT marks.
(iii) All are long answer type questions.

19. How are stationary waves formed in closed pipes? Explain the various modes of vibrations and obtain relations for their frequencies.
    A closed organ pipe 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 is radioactivity? State the law of radioactive decay. Show that radioactive decay is exponential in nature.
    The half life radium is 1600 years. How much time does 1g of radium take to reduce to 0.125g.

21. State Kirchhoff's laws for an electrical network. Using these laws deduce the condition for balance in a Wheatstone Bridge.