C

0219

T-0219-292951

Total No. of Questions - 21
Total No. of Printed Pages - 2

Regd. No. | | | | | | | | | |

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

Time : 3 Hours

Max. Marks : 60

SECTION – A

10×2=20

Note :-

(i) Answer **ALL** the questions.
(ii) Each question carries **TWO** marks.
(iii) All are very short answer type questions.

1. What is dispersion? Which colour gets relatively more dispersed?
2. Define modulation. Why is it necessary?
3. A circular coil of radius 'r' having N turns carries a current 'I'. What is its magnetic moment?
4. Define magnetic declination
5. What is "work function"?
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. Magnetic lines form continuous closed loops. Why?
8. Microwaves are used in Radars, why?
9. State Heisenberg's Uncertainty Principle.
10. Draw the circuit symbols for p-n-p and n-p-n transistors.

SECTION – B

6×4=24

Note :-

(i) Answer **ANY SIX** questions.

(ii) Each question carries **FOUR** marks.

(iii) All are of short answer type questions.

11. Explain the formation of a rainbow.
12. Explain Doppler effect in light. Distinguish between red shift and blue shift.
13. Derive the equation for the couple acting on an electric dipole in a uniform electric field.
14. Derive an expression for the capacitance of a parallel plate capacitor.
15. Find the magnetic induction or magnetic field due to a long current carrying conductor.
16. Describe the ways in which Eddy currents are used to advantage.
17. Explain the different types of spectral series.
18. What is rectification? Explain the working of a full wave rectifier.

SECTION – C

2×8=16

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