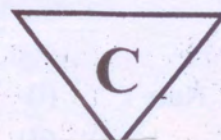


**0219**  
**TS**



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

Regd.  
No.

[Redacted box] [1]

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

Time : 3 Hours]

[Max. Marks : 60

**SECTION – A**

10 × 2 = 20

- Note :** (i) Answer all questions.  
(ii) Each question carries two marks.  
(iii) All are very short answer type questions.

1. Define Modulation. Why is it necessary ?
2. What focal length should the reading spectacles have for a person for whom the least distance of vision is 50 cm ? (The distance of Normal vision is 25 cm.)
3. State Ampere's Law.
4. What direction compass needle points at poles ? Which needle to be used at poles ?
5. State Gauss Law for Magnetism.
6. What are Eddy currents ?
7. State Lenz's Law.
8. What is the phenomenon involved in the working of transformer ?
9. Write any one use of Infrared Waves. Which animal can detect Infrared Waves ?
10. What is p-n junction diode ? Define Depletion layer.

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[ 1 of 2 ]

P.T.O.



### SECTION - B

6 × 4 = 24

- Note :**
- (i) Answer any **six** of the following questions.
  - (ii) Each question carries **four** marks.
  - (iii) **All** are short answer type questions.

- ✓ 11. Explain the formation of Mirage.
- ✓ 12. Define Doppler Effect in light. Explain Red Shift, Blue Shift. What is its importance ?
- ✓ 13. Derive the expression for couple acting on a electric dipole in a uniform electric field.
- ✓ 14. Derive the expression for effective capacitance when 'n' capacitors are connected in series.
- 15. A current of 10 A passes through two very long wires held parallel to each other and separated by a distance of 1 m. What is the force per unit length between them ?
- 16. Define Photoelectric Effect. What is the effect of intensity of light on photoelectric current ? Give one application of photoelectric effect.
- ✓ 17. Give two drawbacks of Rutherford Atomic Model. Write any two postulates of Bohr's Atomic Model.
- ✓ 18. Explain the working of full wave rectifier with diagram.

### SECTION - C

2 × 8 = 16

- Note :**
- (i) Answer any **two** of the following questions.
  - (ii) Each question carries **eight** marks.
  - (iii) **All** are long answer type questions.

- ✓ 19. How are stationary waves formed in closed pipes ? Explain 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/sec, what is the fundamental frequency of vibration of the air column ?
- ✓ 20. State the working principle of potentiometer. Explain with the help of circuit diagram how the emf of two primary cells are compared by using the potentiometer.  
Three resistors each of resistance  $10\ \Omega$  are connected parallel. Calculate the effective resistance of the combination.
- ✓ 21. Explain the principle and working of Nuclear Reactor with the help of a labelled diagram.  
If one microgram of  ${}_{92}\text{U}^{235}$  is completely destroyed in an atom bomb, how much energy will be released ?