

**PHYSICS PAPER - II****(English version )****MODEL QUESTION PAPER****(For the Academic year 2021-22 only)****Time : 3 Hours****Max. Marks: 60****Note :** This question paper consist of three section A, B and C.

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**SECTION – A****Very Short Answer Type Questions:****(i) Answer Any Ten of the following Questions:****(ii) Each question carries TWO marks****10×2 = 20 M**

1. What is hypermetropia ? How can it be corrected ?
2. What is Fresnel distance?
3. State Gauss's law in electrostatics
4. Can there be electric intensity at a point with zero potential ? Give one example
5. Under what conditions is the current through the mixed grouping of cells maximum ?
6. How do you convert a moving coil galvanometer into an ammeter ?
7. Magnetic lines form continuous closed loops. Why ?
8. Current in a circuit falls from 5.0 A to 0.0 A in 0.1 s. If an average emf of 200 V induced, give an estimate of the self-inductance of the circuit
9. A transformer converts 200 V A. C into 2000 V A.C. calculate the number of turns in the secondary if the primary has 10 turns.
10. What type of transformer is used in a 6 V bed lamp ?
11. Write any one use of Infrared Waves. Which animal can detect Infrared Waves ?
12. Write down de-Broglie's relation and explain the terms therein
13. Give two drawbacks of Rutherford's atomic model
14. What are intrinsic and extrinsic semi – conductors ?
15. Define Modulation ? Why is it necessary ?

## SECTION – B

### Short Answer Type Questions:

**(i) Answer Any Six of the following Questions:**

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

**6 × 4 = 24 M**

16. Explain the formation of a mirage.
17. With a neat labeled diagram explain the formation of image in a simple microscope.
18. Does the principle of conservation of energy hold for interference and diffraction phenomena ?  
Explain briefly
19. Derive the equation for the couple acting on a electric dipole in a uniform electric field
20. Derive the expression for the intensity of the electric field at a point on the axial line of an electric dipole.
21. Derive an expression for the capacitance of a parallel plate capacitor.
22. Explain parallel combination of capacitors. Derive the formula for equivalent capacitance.
23. State and explain Biot – Savart's law
24. Describe the ways in which Eddy currents are used to advantage.
25. What is the effect of (i) Intensity of light (ii) Potential on photoelectric current ?
26. What are the limitations of Bohr's theory of hydrogen atom ?
27. Distinguish between nuclear fission and nuclear fusion.
28. Define intensity of electric field at a point. Derive an expression for the intensity due to a point charge.
29. Write a short note on Debroglie's explanation of Bohr's second postulate of quantization.

## SECTION – C

### Long Answer Type Questions:

(i) Answer Any Two of the following Questions:

(ii) Each question carries EIGHT marks

2 × 8 = 16 M

30. How are stationary waves formed in closed pipes ? Explain the various modes of vibrations and obtain relations for their frequencies.
31. State the working principle of potentiometer. Explain with the help of circuit diagram. How the emf of two secondary cells are compared by using the potentiometer.
32. Explain the principle and working of a nuclear reactor with the help of a labeled diagram.
33. What is a rectifier ? Explain the working of half wave and full wave rectifiers with diagrams.