

# SAMPLE QUESTION PAPER-2023

## X11 PHYSICS

### Answer any 5 questions from 1 to 7 (5X1=5)

1. The SI unit of electric field is.....
2. The effective capacitance when two capacitors  $C_1$  and  $C_2$  are connected in parallel is.....
3. The electromagnetic wave used in TV remote is
  - a) Microwave
  - b) IR Wave
  - c) Gamma Rays
  - d) X –Rays
4. Lenz's law obeys the law of conservation of.....
  - a) Charge
  - b) Energy
  - c) Mass
  - d) Momentum
5. The bending of light around the corners of an obstacle is called.....
6. Balmer series lies in.....region of electromagnetic spectrum
7. Total number of protons and neutrons are called.....

### Answer any 5 questions from 8 to 14 (5X2=10 score)

8. Define resistivity and mention its unit
9. Write any two properties of magnetic field lines
10. A light bulb is rated at 100W for a 220 supply. Find
  - a) The resistance of the bulb
  - b)The peak voltage of the source
11. Infra-Red rays are known as thermal radiations .Why?
12. Write any two differences between Interference pattern and Diffraction pattern.
13. Write the drawbacks of Bohr's model of hydrogen atom.
14. Find the radius of the nucleus of Aluminium with mass number 27

### Answer any 6 questions from 15 to 21 (6X3=18 Score)

15. a)Define electric field
  - b) Derive the equation for electric field due to a dipole along an axial line
16. Derive the expression for potential energy of a dipole place in an external field
17. a)Name the which explains the relation between current and the magnetic field produced by the current
  - b) Using this law, obtain the expression for Magnetic Field on the axis of a circular current loop
- 18.a)Define Magnetic Permeability.
  - b) Obtain the relation connecting relative permeability and Magnetic Susceptibility

19.a) State Huygens's Principle

b) Prove the law of reflection on the basis of Huygens's principle

20.a) What is meant by work function?

b) The Work function of a Caesium is 2.14 eV. Find the Threshold Frequency of Caesium.

21. Explain a Half Wave Rectifier and draw the input and output voltage waveforms.

**Answer any 3 questions from 22 to 25 (3X4=12)**

22. With the help of a neat diagram derive an equation for effective capacitance of three capacitors connected in series and parallel.

23. What is Wheatstone's principle? Explain with diagram.

24. Explain the working of a Transformer with a neat diagram

25. What is meant by a microscope? Deduce an equation for magnification for a compound microscope.

**Answer any 3 questions from 26 to 29 (3X5=15 Score)**

26. Derive an expression for refractive Index of the material of the prism in terms of angle of minimum deviation and angle of the prism.

27. State Gauss's theorem in electrostatics. Using this theorem, derive an expression for Electric Field at a point due to a thin sheet of charge.

28. Explain the construction and working of a Moving Coil Galvanometer.

29. Explain a full wave rectifier, and draw the input and output voltage wave forms.

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Prepared by,

1. DEEPAK MP - NNMHSS THIRUNAVAYA

2. MADHAVANKUTTY MK - NNMHSS THIRUNAVAYA

3. ABHILASH - GHSS PURATHUR

4. ANISH.K - MMMMHSS KUTTAYI

5. JAMSHEER BABU M - KHMHSS ALATHIYUR

6. NOUFAL K - KHMHSS ALATHIYUR