

FIRST REVISION EXAM - 2023

STD - XII

PHYSICS

MARKS : 70

TIME : 3.00 Hrs

PART - A

I. Answer all the questions :

15 x 1 = 15

1. For light incident from air on a slab of refractive Index 2, the maximum possible angle of refraction is
a) 30° b) 45° c) 60° d) 90°
2. The ratio between the first three orbits of hydrogen atom is
a) 1 : 2 : 3 b) 1 : 4 : 9 c) 2 : 4 : 6 d) 1 : 3 : 5
3. The frequency range of 3 MHz - 30 MHz belongs to
a) Ground wave propagation b) Sky-wave propagation c) Space wave propagation d) none
4. If $E = E_0 \sin(10^6 x - wt)$ be the electric field of a plane electromagnetic wave, the value of w is
a) $0.3 \times 10^{-14} \text{ rad s}^{-1}$ b) $3 \times 10^{-14} \text{ rad s}^{-1}$ c) $0.3 \times 10^{14} \text{ rad s}^{-1}$ d) $3 \times 10^{14} \text{ rad s}^{-1}$
5. In a transformer, the no of turns in the primary and the secondary are 410 and 1230. If the current in primary is 6A, then that in the secondary is
a) 2A b) 18A c) 12A d) 1A
6. A circular coil of radius 5cm and 50 turns carries a current of 3A. The magnetic dipole moment of the coil is nearly
a) 1.0 Am^2 b) 1.2 Am^2 c) 0.5 Am^2 d) 0.8 Am^2
7. The vertical component of earths magnetic field at a place is equal to the horizontal component. What is the value of dip at this place?
a) 30° b) 45° c) 60° d) 90°
8. The other name for Kirchoff's second law is
a) Voltage law b) current law c) Ohms law d) none
9. The internal resistance of 2.1V cell which gives a current of 0.2A, through a resistance of 10Ω is
a) 0.2Ω b) 0.5Ω c) 0.8Ω d) 1.0Ω
10. The workdone in moving $50\mu\text{C}$ charge between two points on equipotential surface is
a) Zero b) finite positive c) finite negative d) Infinite
11. The critical angle of diamond is about
a) 24.4° b) 25.4° c) 26.5° d) 25.1°
12. Light transmitted by Nicol prism is
a) partially polarised b) Unpolarised c) plane polarised d) elliptically polarised
13. The threshold wavelength for a metal surface whose photo-electric work function is
a) 4125A° b) 3750A° c) 6000A° d) 2062.5A°
14. The zener diode is primarily used as
a) rectifier b) amplifier c) oscillator d) voltage regulator
15. Ski wax is an application of nano-product in the field of
a) Medicine b) Textile c) Sports d) Automotive Industry

PART - B

II. Answer any six questions. Q.No. 19 is compulsory

6 x 2 = 12

16. What is meant by hysteresis?
17. What is displacement current?
18. State Flemings right hand rule.
19. Determine the number of electrons flowing per second through a conductor, when a current of 32A flows through it.
20. What are black holes?
21. What is snells window?
22. Define barrier potential.
23. Give the principle of solar cells.
24. What is the principle of A.C. generator.

PART - C

III. Answer any six questions. Q.No. 30 is compulsory

6 x 3 = 18

25. What are all the merits of fibre optic communication?
26. Why steel is preferred in making robots?
27. What are all the differences between Coulomb force and gravitational force?
28. State the applications of seeback effect.
29. State BIOT-SAVARAT law.
30. The self-inductance of an air core solenoid is 4.8 mH. If its core is replaced by Iron core, then its self-Inductance becomes 1.8H. Find out the relative permeability of Iron.
31. What is angle of deviation due to refraction?
32. List the uses of polaroids.
33. Define stopping potential.

PART - D

IV. Answer all the questions.

5 x 5 = 25

34. Derive an expression for electrostatic potential due to electric dipole. (OR)
Define Dispersive power. Derive an expression for it.
35. Obtain the condition for bridge balance in wheatstones net-work. (OR)
List out the laws of photo electric effect.
36. Discuss the spectral series of hydrogen atom. (OR)
Discuss the conversion of galvanometer into ammeter and voltmeter.
37. Derive an expression for phase angle between the applied voltage and current in LCR circuit. (OR)
State and prove De-Margans first and second theorem.
38. What are electro-magnetic waves. Write down the properties of electro-magnetic waves. (OR)
~~Discuss the experiment to determine the wavelength of mono-chromatic light using diffraction grating.~~