

Padasalai.Net's Special Question Paper 2022-2023

STD : XII.
SUB: PHYSICS

MARKS: 70
TIME: 3.00HRS

MODEL QUARTERLY EXAM – (2022- 2023)

PART - A

CHOOSE THE BEST ANSWER

10 X 1 = 10

- The speed of light in an isotropic medium depends on,
a) intensity b) wavelength c) The nature of propagation
d) the motion of the source w.r.to medium
- Light transmitted by Nicol prism is ----?
a) partially polarised. b) unpolarised c) plane polarised. d) elliptically polarised
- Which of the following electromagnetic radiation is used for viewing objects through fog
a) microwave. b) gamma rays. c) X rays. d) infrared
- If the angular speed of rotation of an armature of AC generator is doubled the induced emf will be --
- a) same b) doubled c) halved d) quadrupled
- In a transformer the number of turns in the primary and secondary are 410 and 1230 respectively If the current in primary is 6 A then that in the secondary coil is ----?
a) 2A. b) 18 A. c) 12A. d) 1A
- Three wires of equal lengths are bend in the form of loops. One of the loops is circle ,another is a semi - circle and third one is a square. They are placed in a uniform magnetic field and same electric current is passed through them. Which of the following loop configuration will experience greater torque?
a) circle b) semi circle c) square d) all of them
- In Joule's heating law when R and t are constant if the H is taken along the y axis and square of current along the x axis the graph is ----?
a) straight line. b) parabola c) circle d) ellipse
- A parallel plate capacitor stores a charge Q at a voltage V. Suppose the area of the parallel plate capacitor and the distance between the plates are each doubled then which is quantity that will change?
a) capacitance. b) charge. c) voltage. d) Energy density
- Which charge configuration produces a uniform electric field?
a) point charge. b) uniformly charged infinite line
c) uniformly charged infinite plane. d) uniformly charged spherical shell.
- A toaster operating at 240 V has a resistance of 120 Ohm. The power is
a) 400 W. b) 2W c) 480 W d) 240 W
- At infinity the electrostatic potential is ---? a) infinity b) maximum. c) minimum d) zero
- When current is doubled deflection is also doubled in ---?
a) moving coil galvanometer b) tangent galvanometer
c) both of them d) neither of two
- The average power consumed per cycle is ---?
a) Zero b) 2000W c) 1000W d) 500 W
- In vacuum speed of light depends upon ---?
a) colour. b) wavelength c) frequency. d) none
- Rainbow is formed by ----- of light by droplets of water.
a) dispersion. b) partial polarisation. c) plane polarization. d) interference.

PART - BANSWER ANY SIX QUESTIONS.Q.NO 23 IS COMPULSORY.

6 X 2 = 12

16. The electric field lines never intersect ? Why?
17. What are ohmic and non ohmic materials?
18. State Ampere circuital law?
19. Mention the ways of producing induced emf?
20. What is meant by Fraunhofer lines? How are they useful in the identification of elements present in the sun?
21. Why do stars twinkle?
22. State Huygen's principle?
23. A coil of 200 turns carries a current of 0.4 A. If the magnetic flux of 4 m Wb is linked with each turn of the coil,find the inductance of the coil?
24. It is possible for two lenses to produce zero power?

PART - CANSWER ANY SIX QUESTIONS.Q.NO 32 IS COMPULSORY.

6X 3 = 18

25. Difference between Fresnel and Fraunhofer diffraction.
26. Derive the relation between focal length and radius of curvature?
27. Discuss the Hertz experiment?
28. State Faraday's law of electromagnetic induction?
29. Explain the concept of velocity selector?
30. State and explain Kirchhoff's rules?
31. Discuss the basic properties of electric charge?
32. A cell supplies a current of 0.9 A through a 2 ohm resistor and a current of 0.3 A through a 7 ohm resistor. Calculate internal resistance of the cell?
33. If the relative permeability and relative permittivity of a medium are 1.0 and 2.25 respectively,find the speed of the electromagnetic wave in this medium.

PART - DANSWER ALL THE QUESTIONS.

5 X 5= 25

34. Explain the types of emission spectrum. (OR)
Obtain the equation for Snell window?
35. Obtain the equation for resultant intensity due to interference of light? (OR) prove that the total energy is conserved during LC oscillation?
36. Calculate the magnetic field at a point along the axial line of a bar magnet? (OR) Obtain the condition for bridge balance condition in Wheatstone's bridge?
37. Derive the expression for resultant capacitance when capacitors are connected series and parallel? (OR) Deduce the relation for the magnetic at a point due to an infinitely long straight conductor carrying current?
38. Explain the construction and working of transformer? (OR) a) When does power factor of a series RLC circuit become maximum? b) What is critical angle and Obtain the equation?

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PGT IN PHYSICS

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