

Model question paper - 2024

Class : XII SUB : physics

PART – A

CHOOSE THE BEST ANSWER

15 X 1 = 15 M

1. Which of the following particles is a lepton ?
(a) Electron (b) proton (c) neutron (d) meson
2. In double refraction crystal the extra ordinary ray produces ----- wave front.
(a) Spherical (b) Cylindrical (c) Plane (d) Elliptical
3. The unit of Rydberg Constant is
(a) m (b) no unit (c) 1/m (d) cm
4. Basic characteristics of an atom is / are -----?
(a) Neutrality (b) Stability (c) Spectral emission (d) all these
5. Fine holes are drilled in diamonds using -----?
(a) X – rays (b) Cathode rays (c) Canal rays (d) Laser beam
6. The wavelength of the matter wave is independent of -----?
(a) Mass (b) Velocity (c) Momentum (d) Charge
7. The emf another name is
(a) Frequency (b) Intensity (c) Velocity (d) Voltage
8. The photoelectric emission is ----- process.
(a) a fluorescent (b) a slow (c) an instantaneous (d) a fast
9. Emitter's main function is to supply ----?
(a) electrons (b) majority charge carriers (c) minority charge carriers (d) holes
10. In CE configuration, the output terminal is -----?
(a) Base (b) Emitter (c) Collector (d) All of these
11. The first radio communication device was made up of -----?

(a) Transistors (b) IC chips (c) Electronic valves (d) all of these

12. Torque SI unit ?

(a) Nm (b) N/M (c) Cm (d) dyne cm

13. The superconductor mercury range ?

(a) 4.2 K (b) 2.2 K (c) 4.4 K (d) 5.5 K

14. Which of the following is used to find structure of atoms ?

a) IR b) UV c) Visible light d) microwave

5. The ratio between the first three orbits of hydrogen atom is

(a) 1:2:3 (b) 2:4:6 (c) 1:4:9 (d) 1:3:5

PART - B

ANSWER THE ANY SIX QUESTIONS. Q.NO 24 IS COMPULSORY. $6 \times 2 = 12$

16. Define transition temperature

17. State tangent law?

18. Define Curie?

19. What is meant by biasing? Mention its types

20. Write any two advantages and disadvantages of Robotics?

21. Define Q meter ?

22. Write down the postulates of Bohr atom model?

23. Calculate the distance upto which ray optics is a good approximation for light of wavelength 500nm falls on an aperture of width 0.5 mm.

24. Is it possible for two lenses to produce zero power?

PART - C ANSWER THE ANY SIX QUESTIONS.

Q.NO 33 IS COMPULSORY. $6 \times 3 = 18$

25. Write short note on microwave

26. Explain thermoelectric effect

27. State de Broglie hypothesis?

28. Write the properties of nuclear force?
29. State and prove Demorgans theorem
30. What are nanoscience and nanotechnology
31. Define impact parameter?
32. Difference between interference and diffraction?
33. Calculate the radius of ${}_{13}\text{Al}^{27}$ nucleus

PART - D

ANSWER THE ALL QUESTIONS 5 X 5 = 25 M

34. Obtaining the equation mirror equation

(OR)

Obtain the expression cyclotron

35. Explain emission spectra

(OR)

Properties of coulomb force

36. Resistance series and parallel connections with neat diagram

(OR)

Explain about the discovery and production of X - rays?

37. Explain AC generator single phase

(OR)

Explain the J.J Thomson experiment to determine the specific charge of electron?

38. Explain self induction .Deduce the unit for self inductance .

(OR)

Draw a circuit diagram and working of a half wave rectifier?

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