Sir Cv Raman Coaching Centre – Idappadi ,Salem-637101

XII Physics Important Diagram -2025

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1. Explain in detail the construction and working of a Van de Graaff generator
2. Derive the expression for resultant capacitance, when capacitors are connected in series and in parallel
3. Obtain the expression for electric field due to an infinitely long charged wire
4. Obtain the expression for electric field due to an charged infinite plane sheet
5. Obtain the expression for electric field due to an uniformly charged spherical shell. Calculate the electric field due to a dipole on its axial line and equatorial plane
6. Explain the equivalent resistance of a series and parallel resistor network.
7. State and explain Kirchhoff 's rules.
8. Obtain the condition for bridge balance in Wheatstone's bridge.
9. Explain the determination of unknown resistance using meter bridge.
10. How the emf of two cells are compared using potentiometer?
11. Deduce the relation for the magnetic field at a point due to an infinitely long straight conductor carrying current using Biot-Savart law
12. Obtain a relation for the magnetic field at a point along the axis of a circular coil carrying current using Biot-Savart law.
13. Discuss the conversion of galvanometer into an ammeter and also a voltmeter.
14. Compute the torque experienced by a magnetic needle in a uniform magnetic field
15. How are the three different emfs generated in a three-phase AC generator? Show the graphical representation of these three emfs.
16. Explain the working of a single-phase AC generator with necessary diagram.
17. Show mathematically that the rotation of a coil in a magnetic field over one rotation induces an alternating emf of one cycle.
18. Derive an expression for phase angle between the applied voltage and current in a series RLC circuit
19. Describe the Fizeau's method to determine the speed of light
20. Discuss the diffraction at single slit and obtain the condition for nth minimum.
21. Discuss the diffraction at a grating and obtain the condition for the mth maximum
22. Explain about compound microscope and obtain the equation for the magnification.
23. Prove law of reflection using Huygens' principle
24. Prove law of refraction using Huygens' principle
25. Explain the Young's double slit experimental setup and obtain the equation for path difference.
26. Discuss about astronomical telescope.
27. Discuss about the simple microscope and obtain the equations for magnification for near point focusing and normal focusing.
28. Give the construction and working of photo emissive cell.
29. Briefly explain the principle and working of electron microscope.
30. Briefly discuss the observations of Hertz, Hallwachs and Lenard
31. Describe the working of nuclear reactor with a block diagram.
32. Explain the J.J. Thomson experiment to determine the specific charge of electron
33. Explain the variation of average binding energy with the mass number using graph and discuss about its features.
34. Sketch the static characteristics of a common emitter transistor and bring out the essential features of input and output characteristics
35. Explain the basic elements of communication system with the necessary block diagram
36. Draw the circuit diagram of a half wave rectifier and explain its working
37. Explain the construction and working of a full wave rectifier
38. Give circuit symbol, logical operation, truth table, and Boolean expression of i) AND gate ii) OR gate iii) NOT gate iv) NAND gate v) NOR gate and vi) EX-OR gate
39. Describe the function of a transistor as an amplifier with the neat circuit diagram. Sketch the input and output wave forms.
40. Transistor functions as a switch. Explain