AMAN DHATTARWAL

"Examinations are meant to perform and not to fear"

CLASS 12TH BOARD EXAMINATION:
TIME LEFT: 4 months

Physics:

Unit 1. Electrostatics - 8 marks
Unit 2. Current Electricity - 7 marks
Unit 3. Magnetic effect of current & Magnetism - 8 marks
Unit 4. Electromagnetic Induction and Alternating current S 8 marks
Unit 5. Electromagnetic Waves - 3 marks
Unit 6. Optics - 14 marks
Unit 7. Dual Nature of Matter - 4 marks
Unit 8. Atoms and Nuclei - 6 marks
Unit 9. Electronic Devices - 7 marks
Unit 10. Communication Systems - 5 marks
Total - 70 marks

Important Questions for Physics-

1 Derive an expression for the energy stored in a parallel plate capacitor.
2 Derive an expression for the loss of energy when two conductors at different potentials are brought into electrical contact. Account for this energy.
3 Derive and expression for the energy density of a parallel plate capacitor.
4 Derive I = nAeVd
5 Define drift velocity and derive an expression for it.
6 Deduce Ohm's law from elementary concepts.
7 State Biot Savart's Law and apply it to find the magnetic field at a point due to long straight conductor carrying current
8 State Ampere's circuital theorem and apply it to find the magnetic field inside a (i) solenoid (ii) toroid State the Principle of a potentiometer and Explain how is it used (i) to determine the internal resistance of a primary cell (ii) to compare the emfs of two primary cells State Kirchhoff's laws and apply it to derive Wheatstone's bridge principle.
9 Explain how will you use a metre bridge to find the resistance of a given resistor wire?
10 Describe the elements of earth's magnetic field.
11 Compare the properties of para dia and ferromagnetic substances.
12 Derive an expression for the effective resistance when three resistors are connected in (i) series (ii) parallel.
13 Describe the principle construction and working of CYCLOTRON.
14 Derive an expression for cyclotron frequency.
15 Why electrons cannot be accelerated in a cyclotron?

NCERT BOOK SOLUTIONS- http://www.learncbse.in/ncert-solutions-class-12-physics/

Important Questions Chapter Wise - http://www.learncbse.in/important-questions-for-cbse-class-12-physics/

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1. **IMPORTANT derivations:-**

2. Derive an expression for the energy stored in a capacitor. Show that whenever two conductors share charges by bringing them into electrical contact, there is a loss of energy?
3. State Gauss theorem and apply it to find the electric field at a point due to (a) a line of charge (b) A plane sheet of charge (c) A Charged spherical conducting shell?
4. Work done (dipole electric field)
5. Derive an expression for the electric field at a point on the axial/ equatorial position of an electric dipole?
6. Draw the block diagram of communication system. Explain the function of each?
7. Derive the expression I=nAevd?
8. State and explain the principle of Whear Stone's?
9. Derive an expression for the force between long straight conductors carrying current.
10. Explain the principle of a potentiometer. Describe how will you determine (a) the ratio of emf's of two primary cells using potentiometer. (b) The internal resistence of a primary cell using potentiometer
11. State and explain Faraday's laws of electromagnetic induction
12. Explain the phenomenon of mutual induction and define mutual inductance. Write the unit and dimensions of mutual inductance?
13. State Biot Savart law and apply it to find the magnetic field due to circular loop carrying current at a point (a) at its centre (b) on the axis
14. Draw the phasor diagram showing voltage and current in LCR series circuit and derive an expression for the impedance
15. Describe the lens maker's law
16. Derive an expression for the average power in an ac circuit
17. Describe the principle construction theory and working of a transformer, losses in a transformer and explain how the losses can be minimized?
18. Describe Davisson Germer experiment which provided experimental evidence for wave nature of matter
19. Describe the experiment to study photoelectric effect and explain the laws of photoelectric effect and significance of each
20. What is zener diode? Draw the V-I characteristics of zener diode. Describe the use of zener diode as a voltage regulator.
21. Explain the working of transistor oscillator
22. Explain the working of transistor as a switch
23. Draw the circuit diagram for determining transistor characteristics of transistor in CE configuration with relevant graphs
24. Various instruments of Optics
25. Young's double slit experiment

NOTES:
- Make diagrams
- SI units
- Numericals-
    26. Current Electricity
    27. Optics
    28. Electostatics
    29. Dual nature and Atomic Nuclie (numericals are formula based)
- Optics : most important
- Telescope and Microscope

- Young's double slit exp
- NCERT for optics