

AUTUMN BREAK HOMEWORK

CLASS -12 SUBJECT-PHYSICS

Q1 State Gauss law in Electrostatics .Derive expression for electric field due to uniformly charged spherical shell at a point

(A) inside the spherical shell

(B) on the shell

(C) outside the shell

Q2 Derive the expression for electric field at an axial point of electric dipole .

Q3 Define equipotential surface .Draw equipotential surface for

(A) Two positive point charges

(B) Electric dipole

Q4 Derive expression for capacitance of parallel plate capacitor when vacuum is inside the plates of parallel plate capacitor

Q5 Define Wheatstone bridge .Draw its circuit diagram .Derive the formula for balance condition of Wheatstone bridge using Kirchhoff's laws.

Q6 State Kirchhoff's laws of electricity.

Q7 State Biot Savart's law .Derive expression for magnetic field due to a circular current carrying loop on its axis using Biot Savart's law.

Q8 State Ampere circuital law.Derive the expression for magnetic field inside the solenoid.

Q9 Define Diamagnetic substances, Paramagnetic substances and Ferromagnetic substances. Write the properties of each of them.

Q10 Define electromagnetic induction. State the laws of electromagnetic induction

Q11 Define self inductance. Write its unit and dimension.

Q12 State Lenz's law. Show that Lenz law is consequence of law of conservation of energy .

Q13 Define AC generator. Write its principle. Draw its diagram. Write its working also.

Q14 What is impedance of series LCR circuit when current is maximum.

Q15 State modified Ampere law.

Q16 Draw the graph between direction of em wave, Electric field vector and magnetic field vector.

Q17 Write and Prove Lens maker formula.

Q18 Write and Prove Prism formula

Q19 Define wavefront .Name the types of wavefront. Draw figure of each.

Q20 Define interference. Explain Young double slit experiment. Find expression for resultant intensity in young double slit experiment. Write formula for fringe width

Q21 State Laws of photoelectric effect.

Q22 Explain the Einstein theory of photoelectric effect.

Q23 Define De Broglie's wave. Write De Broglie's wave equation.

Q24 Find smallest and longest wavelength in Balmer series of Hydrogen spectrum

Q25 Explain Bohr's Atomic model.