DELHI PUBLIC SCHOOL, JAMMU
Preboard1 assignment
SESSION(2017-18)

Class: XII
Sub: Physics

Chapter: Electrostatic,current electricity,Magnetism,Dual nature of matter and radiation,Electronic devices,Communication.EM waves,optics,AC and EMI

Q1. Can two equipotential surfaces intersect eachother? Justify your answer.

Q2. Plot graphs showing the variation of resistance of a conducting wire as a function of its radius, keeping the length of the wire and its temperature as constant.

Q3.What is displacement current?

Q4. What is the nature of magnetic field in a moving coil galvanometer?

Q5. If refractive indices of glass and water w.r.t air are 3/2 and 4/3 resp. What is the refractive index of glass w.r.t to water.

Q6. Distinguish between paramagnetic and diamagnetic substance

Q7. Derive the relation between current and drift velocity.

Q8.A network of four capacitors each of 12μF capacitance is connected a 500 V supply as shown in the figure. Determine the equivalence capacitance of the network.

Q9.Give relation between real depth and apparent depth.

Q10. State faraday's laws of electromagnetism.

Q11. An electric dipole is held in a uniform electric field.

i) Show that net force acting on it is zero
ii) The dipole is aligned parallel to the field
iii) Find the work done in rotating it through an angle of 180^o

Q12.Derive an expression for the energy stored in parallel plate capacitor. Hence, obtain the expression for the energy density of the electric field

Q13. Explain with the help of a graph, the variation of conductivity with temperature for a metallic conductor and ohmic conductors

Q14.Using krichoff's law in the given circuit determine the voltage drop across unknown resistance R and the current I in the arm EF.

Q15.State Biot-savart law for magnetic field produced at a point due to small current element. How will you find the direction of magnetic field?

Q16. How is galvanometer converted into a voltmeter and an ammeter. Draw the relevant diagram and find the resistance of the arrangement in each case.

Q17. Explain the phenomenon of total internal reflection. Give its one application.

Q18. Draw a ray diagram of astronomical telescope.Derive an expression for its magnifying power.

Q19. Green light is incident at the polarizing angle on a certain glass plate.The angle of refraction is 32^{o}.What is :

i) the polarizing angle

ii) the index of refraction of glass

iii)Indicate the polarization component on the reflected and refracted rays by double arrows and dots.

Q20. Derive lens maker formula for thin convex lens with the help of diagram.

Q21.Mention various energy looses in a transformer.

Q22. Show that the current leads the voltage in phase $\pi/2$ in an AC circuit containing ideal capacitor.

Q23. . Explain the effect of

(i) intensity of light on photoelectric current

(ii) potential on photo electric current

(iii) frequency of incident radiation on stopping potential.

Q24.a) Use Gauss's theorem to find the electric field due to a uniformly charged infinitely large plane thin sheet with surface charge densityσ.

b) How is the field directed if (i) the sheet is positively charged (ii) negative charged

Q25.a) Explain with the help of label diagram,the principle and construction of cyclotron.

b)Deduce the expression for cyclotron frequency and show that it doesnot depend on the speed of charge particle.

Q26 (i) Give the logical symbol, truth table and Boolean expression for NAND ,AND ,OR gate.

(ii) how can you prepare AND gate using NOR gate

Q27.Draw the circuit diagram of p-n junction diode as a half wave rectifier? Also draw input output characterstics and how can you filter its output?