Physics - 12th Class Physics Full Book Short Questions Preparation

Q1. Define electromagnetism and give the name of one device in which electromagnetism is used.

Ans 1: The branch of physics which deals with electricity and magnetism and the interaction between them is known as electromagnetism.
Electromagnetism is used in doorbells,electric motors such as electric fan etc.

Q2. How a wheatstone bridge is used to determine an unknown resistance?

Ans 1: Wheatstone bridge is an especially designed electrically circuit used to calculate the accurate value of any unknown resistance.It consists of four resistance,a galvanometer, a battery and a switch connected.When the switch is closed current pas through the galvanometer and then the three known resistance R_1,$R_2$and $R_3$are adjusted in such a way that galvanometer show no deflection,In this balanced condition the fourth unknown resistance R_4can be calculated by using this relation.$R_1/R_2=R_3/R_4$.

Q3. Define Fracture stress.

Ans 1: Once the limit of ultimate tensile stress (UTS) is crossed,the material breaks and the stress is called fracture stress.

Q4. Define polymeric solid with example.

Ans 1: Polymers are solid materials with a structure that is intermediate between order and disorder,They can be classified as partially or poorly crystalline solids.For example plastic,rubber.

Q5. If area of the loop and magnetic field both are changing and still have no induced emf.Explain why?

Ans 1: If the plane of the loop is kept parallel to the direction of the magnetic field,magnetic field through the coil will be zero,no emf will be induced in the loop either by changing its are or by changing the magentic field.

Q6. Define characteristics of X-rays and continuous x-rays.

Ans 1: Chararcterstics X-rays: The x-rays emitted from inner shell transitions are called characteristics x-rays and their energy depends on the type of target material.
Continuous X-rays:The x-rays emitted having continuous range of frequencies due to bremsstrahlung effect are called continuous x rays.

Q7. How can the strain energy be determined from the force extension graph?

Ans 1: Strain energy can be determined from the force extension graph according to the following relation
Strain energy :1/2 l_1F_1

Q8. Define polymerization,write two examples of polymeric solid

Ans 1: Polymers are found by polymerization reaction,.In these reaction relatively simple molecule are chemically combined into massive long chain molecule or three dimensional structure.
Polythene and nylon are example of polymeric solids.

Q9. State the Lenz's law and define Henry.

Ans 1: Lenz's Law: It states that the direction of induced current is always so as to opposite the change which cause the current.
Henry: If the current in the primary is changing at the rate of one ampere per second and the emf induced across the ends of the secondary coil is one volt then the mutual inductance is called one henry.

Q10. Briefly describe continuous x-rays.

Ans 1: Continuous X-rays is due to an effect known as Bremsstrahlung effect when fast moving electron bombarded at the target,they are suddenly slowed down on impact with the target,And due to deceleration their kinetic energy is converted into X-rays photons.

Q11. Define half-line of radioactive element.How is it related with decay constant?

Ans 1: Half-line:$T_{1/2}$is the period in which half of the atom of a radioactive element decay.
It is related with a decay constant by formula.
$T_{1/2}= 0.693/\Lambda$

Q12. What depend on the slow or fast charging and discharging of a capacitor?

Ans 1: How fast or how slow the capacitor is charging or discharging depends upon the products of the resistance and the capacitance called time constant.Capacitor is charged or discharged rapidly when RC is small.

Q13. Define electric potential and give its SI units.

Ans 1: The electric potential at any point in an electric field is equal to work done in bringing a unit positive charge from infinity to that point keeping it in equilibrium.Its SI unit is Volt (V).

Q14. What does the equation $H=I^2Rt$ show?

Ans 1: This equation show the heating effect,During their motion free electrons collide frequently with the atom of metal.on each collision they transfer some of their kinetic energy to the atom with which they collide.And these collisions produce heating effect in the wire.

Q15. Define fission and fusion reaction.

Ans 1: Fission: Such a reaction in which a heavy nucleus like that of uranium splits up into two nuclei of roughly equal size along

with the emission of energy is called fission reaction.

Ans 2: Fusion: A reaction in which two light of nuclei merge to form a heavy nucleus is called fusion reaction.It requires very high temperature.

Q16. Write two properties of RLC series circuit.

Ans 1:

1. The impedance of the circuit at resonance is minimum and equal to R.
2. The power factor of RLC series circuit is 1.

Q17. What does are of hysteresis loop tell?

Ans 1: The area of the loop is the measure of the energy needed ti magnetize and demagnetize the specimen during each cycle of the magnetizing current,This is the energy required to do work against internal friction of the domains.This work is dissipated as heat.It is called hysteresis loss.

Q18. Distinguished between electric field and field intensity.

Ans 1: Electric Field: The space or region around the charge in which it exerts its electric force on other charges is called electric field.

Ans 2: Electric field intensity: At any point in electric field the force experienced by a point charge q is termed as electric or strength at that point.

Q19. Give two substance having negative temperature coefficient.Also define the temperature coefficient.

Ans 1: The temperature coefficient of a resistance is defined as fractional change in resistance per kelvin rise in temperature.Its unit is K^{-1}.Substance like Ge and Si have negative temperature coefficient.

Q20. Define Electromotive force and Terminal potential difference.

Ans 1: Electromotive force:The energy supplied to a unit charge in moving it from negative to positive electrode inside the source is called electromotive force.

Ans 2: Terminal potential difference:The potential difference across the terminal of a cell or battery when current is being drawn from it is called terminal potential difference.The potential difference across the conductor is zero when no current flows through it.
