Physics - ICS Part 2 Physics Full Book Short Questions Preparation

Q1. What is meant by tolerance of resistors?

Ans 1: Tolerance is the measure of possible variation from the marked value,A gold band has +-5% tolerance ,silver has +-10% and no band at all wounf mean a +-20 tolerance.

Q2. What should be orientation of a current carrying coil in magnetic field so that the torque acting upon the coil is (a) maximum (b)minimum.

Ans 1: The torque experienced by a current carrying loop when placed in magnetic field is t=NIBA cos alpha.
When plane of the coil makes and angle of 0 degree with magnetic field ,the torque on the coil will be maximum.t=NIBA.
When plane of the coil makes and angle of 90 degree with magnetic field the torque on the coil will be zero or minimum.
t=NIBA cos 90 degree
t=0.

Q3. What are paramagnetic Substance?Give an example

Ans 1: The solid in which the orbital and spin axes of the electrons in an atom are so oriented that their magnetic field support each other are called paramagnetic substance.For example ozone,platinum etc

Q4. What is the effect on drift velocity of free electrons by increasing potential difference?

Ans 1: By an increase in potential difference,drift velocity also increase.Because by increasing potential difference ,the current also increase .

Q5. How energy released when 1 amu converted into energy?

Ans 1: 1 amu= 1.66 x10^{-27}kg

the energy of 1 amu is 1 amu =1.494 x10^{-10}J
1 amu= 931 MeV

Q6. Does the induced current depend on the resistance of the circuit?

Ans 1: Yes the induced current depend upon the resistance of the circuit.
By ohm's law
I=e/R
Thus the induced current depends on the resistance of the circuit.

Q7. Define magnetic flux and write its unit.

Ans 1: The number of magnetic lines of force passing through certain area element is called magnetic flux.Magnetic flux is a scalar quantity and its SI unit is NmA^{-1}which also called weber (Wb).

Q8. Define young modulus and shear modulus.

Ans 1: The ratio of tensile stress to tensile strain is called young modulus.

Ans 2: The ratio of shear stress to shear strain is called shear modulus.

Q9. Define reactance,Describe the condition which will make the reactance small.

Ans 1: The opposition offered by capacitor or inductor to the flow of alternating current is called reactance.For a capacitor reactance will be small when frequency is large and for an inductor reactance will be small when frequency is small.

Q10. Is energy conserved when an atom emits a photon of light?

Ans 1: Yes energy is conserved when an excited atom emits a photon of light.When atom is excited ,energy is supplied .The same energy is emitted in the form of photon when it return back to its ground state.

Q11. Define choke and electromagnetic waves.

Ans 1: A choke is a coil made of thick insulated copper wire wound closely in a large numbers of turns over a soft iron laminated core,It is used to control alternating current through a circuit without much loss of energy.

Ans 2: Electromagnetic waves are those which require no medium for transmission and rapidly propagate through vaccum e.g visible light, x rays,gamma rays.

Q12. How the normal operation of transistor is achieved?

Ans 1: For the normal operation the base emitter junction of transistor is forward biased and collector base junction is reverse. In a common emitter amplifier ,input signal is applied between base and emitter and output signal is taken across collector and emitter,Similarly emitter base junction is forward biased and collector base junction is reverse biased.

Q13. What is mean by commutator in D.C generator?

Ans 1: Commutator consists of two split rings or two halves of a single ring.Each half of split ring is connected to each end of the rotating coil,It helps to maintain the output in the same direction by inverting lower halves if sine curve.

Q14. The rest mass of photon is zero.Is its momentum also zero?

Ans 1: No,The rest mass of photon is zero.It travels in the form of small energy packets which are of equal wavelength .When it is in motion,it possesses some mass.So it which it will also have momentum.

Q15. Distinguished between photoelectric effect and Compton effect.

Ans 1: The emission of electron from a metal surface when exposed to suitable frequency light is called photoelectric effect and when x rays are scattered by loosely bound electrons from graphite target the phenomena of change in wavelength is known as compton effect.

Q16. 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.

Q17. Can an electron at rest be set in motion with magnet?Explain

Ans 1: No an electron at rest can not be set in motion with a magnet because at rest electrons only have electric field which can not interfere with magnetic field to cause any force which can produce motion in electrons.

Q18. Discuss briefly digital multi meter.

Ans 1: It is an digital version of an AVO meter,It is used to measure resistance voltage and current.It has become very popular testing device because the digital values are displayed automatically with decimal point,polarity and the unit for voltage current and resistance,

Q19. Give any two characteristics of operational amplifier.

Ans 1: Input Resistance: It is the resistance between the + and - input of the amplifier,Whose value is of the order of several mega ohms.
Output resistance:It is the resistance between the output terminal and ground.Its value is only a few ohms.

Q20. What is photovoltaic cell?Discuss its working?

Ans 1: It consists of a thick n type region covered by a thin p-layer type.When exposed to light,it absorbs photon which generated electron-hole pairs.The electric field at the junction moves electron and holes and a current flow through the external circuit.And this current is directly proportional to the intensity of light.