

## Physics - ICS Part 2 Physics Full Book Short Questions Preparation

Q1. Does the total flux depend upon the shape or geometry of the closed surface?

**Ans 1:** No, the total flux does not depend upon the shape or geometry of the closed surface, it depends upon medium and charge enclosed.

Q2. Distinguished between magnetic flux and magnetic flux density.

**Ans 1:** Magnetic Flux: The number of magnetic lines of force passing through certain elements of area is called magnetic flux. Magnetic flux is a scalar quantity.

**Ans 2:** Magnetic flux density: The magnetic flux per unit area of a surface perpendicular to magnetic field is called magnetic flux density.

Q3. Define stable galvanometer and Ohmmeter.

**Ans 1:** A galvanometer in which the coil comes to rest quickly after the current passed through it or the current is stopped from flowing through it is called Stable or Dead Beat galvanometer.

Ohmmeter is a useful device for rapid measurement of resistance. It measures resistance in Ohm.

Q4. Write down use of laser in industry.

**Ans 1:** It can be used for telecommunication in fibre optics.

It is used to read bar codes,

It is used to generate 3D image of objects by holography.

Q5. Write the formula used to convert a galvanometer into voltmeter. Why the resistance of voltmeter should be high?

**Ans 1:** Galvanometer can be converted into ammeter using this relation/

$$R_V = V/I_g - R_g$$

A voltmeter is connected in parallel to the resistor to measure potential difference across it. It should have very high resistance so that practically a very little current should pass through it and the current of the circuit should almost remain constant, so that it might measure the potential difference across a resistor accurately.

Q6. Define nuclear fission.

**Ans 1:** 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.

Q7. Define resistivity and electrolysis.

**Ans 1:** The resistance of a meter cube of a material is called resistivity. Certain liquids such as dilute sulphuric acid or copper sulphate solution conduct electricity due to some chemical reactions that take place within them. The study of this process is known as electrolysis.

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Q8. As a solid is heated and begins to glow, why does it first of its absolute.

**Ans 1:** Since the red light has the longest wavelength, so it will be emitted first and the solid appears red first.

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Q9. What is meant by EEG and ERG?

**Ans 1:** Electroencephalography: is usually applied over the human brain to check its abnormal behaviour by the use of electrical energy. For this, electrodes are connected to the selected portion of the head and the corresponding response is seen graphically through the screen of a recording device.

**Ans 2:** Electrocardiography: records the voltage between points on human skin generated by the electrical process in the heart. It is made in a running position providing information about the heart's performance under stress.

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Q10. Define coercivity of a material.

**Ans 1:** To demagnetize the material, the magnetizing current is reversed and increased to reduce the magnetization to zero. This is known as the coercive current, and this process is called coercivity.

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Q11. Define reactance of an inductor and write its formula.

**Ans 1:** The opposition offered by an inductor in the flow of AC is called inductive reactance, which varies directly with the frequency of AC. i.e.  $X_L = 2\pi fL$ .

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Q12. Briefly describe the current through a metallic conductor and drift velocity.

**Ans 1:** In a metallic conductor, free electrons are in random motion with the speed of several hundred km/s at room temperature. If the ends of the wire are connected to a battery, the free electrons experience a force and are directed to move in the electric field direction. The accelerating electrons keep on colliding with atoms of the conductors and transfer their energy to the lattice, with the result that the electrons acquire an average velocity called drift velocity. The drift velocity is of the order of  $10^{-3}$  m/s. A steady current is established in the wire.

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Q13. Give the statement of Gauss's law.

**Ans 1:** It states that the total electric flux through any closed surface is equal to  $1/\epsilon_0$  times the total charge enclosed in it.

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Q14. What do you understand by "background radiation"? State two sources of this radiation?

**Ans 1:** When no radioactive source is placed near the radiation detector, it records radiation. These radiations are called background radiations. Its sources are

1. Cosmic rays
2. presence of radioactive substance Earth crust and atmosphere.

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Q15. Define self induction and mutual induction.

**Ans 1:** The phenomena in which changing current in a coil induced a emf in itself is called self-induction.  
The phenomena in which changing current in one coil induces an emf in another coil is called mutual induction.

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Q16. What is Lorentz force?

**Ans 1:** The vector sum of electric force and magnetic force is called Lorentz force.

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Q17. If nucleus has a life of one year,does this mean that it will be completely decayed after two years?

**Ans 1:** No it will not decay completely after two years.  
Numbers of atom at initial stage =  $N_0$   
number of atoms decayed after first year =  $1/2N_0$

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Q18. Write down any one method used for the production of induced emf.

**Ans 1:** Induced emf can be induced by electromagnetic induction. When a conductor is moved through a magnetic field the electric current flow through the circuit, The emf produced in the conductor is called induced emf and the current generated is called induced current.

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Q19. When the primary of a transformer is connected to A.C mains, the current it is very small if the secondary circuit is open. Explain.

**Ans 1:** If the secondary circuit is open then output power will be zero, Because output power is always slightly smaller than the input power, therefore a very small value of current is being drawn by a primary coil of transformer from AC units,

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Q20. 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.

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