

Parishram (2025)

Physics

DPP: 1

Current Electricity

- Q1** In a current carrying conductor the net charge is
 (A) 1.6×10^{-19} coulomb
 (B) 6.25×10^{-18} coulomb
 (C) zero
 (D) infinite
- Q2** The current which is assumed to be flowing in a circuit from positive terminal to negative, is called
 (A) direct current
 (B) pulsating current
 (C) conventional current
 (D) alternating current
- Q3** When no current is passed through a conductor
 (A) the free electrons do not move
 (B) the average speed of a free electron over a large period of time is zero
 (C) the average velocity of a free electron over a large period of time is zero
 (D) the average of the velocities of all the free electrons at an instant is non zero
- Q4** A current passes through a wire of nonuniform cross-section. Which of the following quantities are independent of the cross-section?
 (A) The charge crossing
 (B) Drift velocity
 (C) Current density
 (D) None of these
- Q5** In the equation $AB = C$, A is the current density, C is the electric field, Then B is
 (A) resistivity
 (B) conductivity
 (C) potential difference
 (D) resistance
- Q6** Drift velocity of electrons is due to
 (A) motion of conduction electrons due to random collisions.
 (B) motion of conduction electrons due to electric field.
 (C) repulsion to the conduction electrons due to inner electrons of ions.
 (D) collision of conduction electrons with each other.
- Q7** The speed at which the current travels, in conductor, is nearly equal to
 (A) 3×10^4 m/s
 (B) 3×10^5 m/s
 (C) 4×10^6 m/s
 (D) 3×10^8 m/s
- Q8** In the absence of an electric field, the mean velocity of free electrons in a conductor at absolute temperature (T) is
 (A) zero
 (B) independent of T
 (C) proportional to T
 (D) proportional to T^2
- Q9** When a potential difference V is applied across a conductor at a temperature T, the drift velocity of electrons is proportional to
 (A) \sqrt{V} (B) V
 (C) \sqrt{T} (D) T
- Q10** For which of the following dependence of drift velocity v_d on electric field E, is Ohm's law obeyed?
 (A) $v_d \propto E^2$
 (B) $v_d \propto E^{1/2}$
 (C) $v_d = \text{constant}$
 (D) $v_d \propto E$



Answer Key

Q1 (C)

Q2 (C)

Q3 (C)

Q4 (A)

Q5 (A)

Q6 (B)

Q7 (D)

Q8 (A)

Q9 (B)

Q10 (D)

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