

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	The value of $\frac{e}{m}$ is smallest for : (A) Proton (B) Electron (C) β -particle (D) Positron
2	At what frequency will an inductor of 1.0 H have a reactance of 500Ω : (A) 50 Hz (B) 80 Hz (C) 500 Hz (D) 1000 Hz
3	The life time of an electron in an excited state is about $10^{-8}s$. What is its uncertainty in energy during this time : (A) $6.63 \times 10^{-34} J$ (B) $9.1 \times 10^{-31} J$ (C) $1.05 \times 10^{-26} J$ (D) $7.2 \times 10^{-15} J$
4	The binding energy per nucleon is maximum for : (A) Hydrogen (B) Nitrogen (C) Uranium (D) Iron
5	The electrostatic force between two charges is 42 N. If we place a dielectric of $\epsilon_r = 2.1$ between the charges then the force become equal to : (A) 42 N (B) 84 N (C) 20 N (D) 2 N
6	The Boolean expression of NAND gate is : (A) $X = A.B$ (B) $X = \overline{A}$ (C) $X = \overline{A.B}$ (D) $X = A + B$
7	The value of charge on 1.0×10^7 electrons is : (A) $1.6 \times 10^{-12} C$ (B) $1.6 \times 10^{+11} C$ (C) $1.6 \times 10^{-19} C$ (D) $1.6 \times 10^{+19} C$
8	Which factor does not affect the conductivity of PN-junction diode : (A) Doping (B) Temperature (C) Voltage (D) Pressure
9	By mass spectrograph we can find the value of mass by using formula : (A) $m = \left(\frac{e^2 r^2}{2V} \right) B^2$ (B) $m = \left(\frac{er^2}{2V} \right) B^2$ (C) $m = \left(\frac{eV}{2r^2} \right) B$ (D) $m = \left(\frac{eV^2}{2r} \right) B$
10	Maximum emf generated in a generator is : (A) $\epsilon_o = \epsilon \sin \theta$ (B) $\epsilon = \epsilon_o \sin \theta$ (C) $\epsilon_o = N\omega AB \sin \theta$ (D) $\epsilon_o = N\omega AB$
11	It is required to suspend a proton of charge 'q' and mass 'm' in an electric field the strength of the field must be : (A) $E = \frac{mg}{qv}$ (B) $E = \frac{mg}{q}$ (C) $E = \frac{q}{mg}$ (D) $E = \frac{qv}{B}$
12	The velocity of an oscillating charge as it moves to and fro along the wire is : (A) Infinite (B) Constant (C) Changing (D) Zero
13	Henry is equal to = (A) VSA^{-1} (B) $VS^{-1}A$ (C) $V^{-1}S^{-1}A$ (D) $V^{-1}S^{-1}A^{-1}$
14	Good conductors have conductivities of the order of : (A) $10^{-7}(\Omega m)^{-1}$ (B) $10^7(\Omega m)^{-1}$ (C) $10^2(\Omega m)^{-1}$ (D) $10^{-2}(\Omega m)^{-1}$
15	The unit of \vec{E} is NC^{-1} and that of \vec{B} is $NA^{-1}m^{-1}$ then the unit of $\frac{E}{B}$ is : (A) ms^{-2} (B) ms (C) $m^{-1}s^{-1}$ (D) ms^{-1}
16	The numerical value of Stefan's constant is : (A) 5.67×10^{-8} (B) 2.9×10^{-3} (C) 6.63×10^{-34} (D) 1.6×10^{-19}
17	The numerical value of Rydberg's constant is : (A) 1.0974×10^7 (B) 1.0974×10^{-7} (C) 1.0974×10^{14} (D) 1.0974×10^{-14}