

Inter (Part-II) 2019

Physics	Group-II	PAPER: II
Time: 20 Minutes	(OBJECTIVE TYPE)	Marks: 17

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 electrostatic force between two charges is 42 N. If we place a dielectric of $\epsilon_r = 2.1$ between the charges, then the force becomes equal to:
- (a) 42 N (b) 84 N
(c) 20 N \checkmark (d) 2 N
- 2-** 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) $E = \frac{mg}{q}$ \checkmark
(c) $E = \frac{q}{mg}$ (d) $E = \frac{qv}{B}$
- 3-** The value of charge on 1.0×10^7 electrons is:
- (a) 1.6×10^{-12} C \checkmark (b) $1.6 \times 10^{+11}$ C
(c) 1.6×10^{-19} C (d) $1.6 \times 10^{+19}$ C
- 4-** 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} \checkmark

- 5- The value of $\frac{e}{m}$ is smallest for:
- (a) Proton ✓ (b) Electron
(c) β -particle (d) Positron
- 6- Henry is equal to = :
- (a) VsA^{-1} ✓ (b) $Vs^{-1}A$
(c) $V^{-1}s^{-1}A$ (d) $V^{-1}s^{-1}A^{-1}$
- 7- Maximum emf generated in a generator is:
- (a) $\epsilon_0 = \epsilon \sin \theta$ (b) $\epsilon = \epsilon_0 \sin \theta$
(c) $\epsilon_0 = N\omega AB \sin \theta$ (d) $\epsilon_0 = N\omega AB$ ✓
- 8- The velocity of an oscillating charge as it moves to and fro along the wire is:
- (a) Infinite (b) Constant
(c) Changing ✓ (d) Zero
- 9- At what frequency will an inductor of 1.0 H have a reactance of 500 Ω :
- (a) 50 Hz (b) 80 Hz ✓
(c) 500 Hz (d) 1000 Hz
- 10- 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) $10^{-2} (\Omega m)^{-1}$
- 11- Which factor does not affect the conductivity of p-n-junction diode:
- (a) Doping (b) Temperature
(c) Voltage (d) Pressure ✓
- 12- The Boolean expression of NAND gate is:
- (a) $X = A.B$ (b) $X = \bar{A}$
(c) $X = \overline{A.B}$ ✓ (d) $X = A + B$

- 13- The numerical value of Stefan's constant is:
(a) $5.67 \times 10^{-8} \text{ W m}^{-2} \text{ K}^{-4}$ ✓ (b) 2.9×10^{-3}
(c) 6.63×10^{-34} (d) 1.6×10^{-19}
- 14- The lifetime of an electron in an excited state is about 10^{-8} s. What is its uncertainty in energy during this time:
(a) $6.63 \times 10^{-34} \text{ J}$ (b) $9.1 \times 10^{-31} \text{ J}$
(c) $1.05 \times 10^{-26} \text{ J}$ ✓ (d) $7.2 \times 10^{-15} \text{ J}$
- 15- The numerical value of Rydberg's constant is:
(a) $1.0974 \times 10^7 \text{ m}^{-1}$ ✓ (b) 1.0974×10^{-7}
(c) 1.0974×10^{14} (d) 1.0974×10^{-14}
- 16- 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) $m = \left(\frac{e r^2}{2v}\right) B^2$ ✓
(c) $m = \left(\frac{e v}{2r^2}\right) B$ (d) $m = \left(\frac{e v^2}{2r}\right) B$
- 17- The binding energy per nucleon is maximum for:
(a) Hydrogen (b) Nitrogen
(c) Uranium (d) Iron ✓