

KNOWLEDGE HORIZON CLASSES

Test Series

- Q1.** Find *incorrect* alternative. The SI unit of electric field intensity is:
(i) Am^{-1} (ii) Vm^{-1}
(iii) $\text{JC}^{-1}\text{m}^{-1}$ (iv) NC^{-1}
- Q2.** A hollow insulated conduction sphere is given a positive charge of $10 \mu\text{C}$. What will be the electric field at the centre of the sphere of its radius 2 metres?
(i) Zero (ii) $5 \mu\text{C m}^{-2}$
(iii) $20 \mu\text{C m}^{-2}$ (iv) $8 \mu\text{C m}^{-2}$
- Q3.** When a test charge is brought from infinity along the perpendicular bisector of an electric dipole, then the work done is:
(i) positive (ii) negative
(iii) zero (iv) can not be explained
- Q4.** A $4\mu\text{F}$ capacitors is charged to 400 V. Its plates are connected by a copper wire. The heat produced in the wire is:
(i) 0.16J (ii) 0.32J
(iii) 0.64J (iv) 1.28 J
- Q5.** In a 210-W electric bulb, the heat generated in 5 minutes will be approximately (J = 4.2 joule/calorie)
(i) 15000 cal (ii) 1050 cal (iii) 63000 cal (iv) 80000 cal
- Q6.** n rows each having m cells in series, are connected in parallel. This battery of cells is sending maximum current in a 3-ohm resistor. If the internal resistance of each cell is 0.5 ohm, then:
(i) $m = 12, n = 2$ (ii) $m = 8, n = 3$ (iii) $m = 2, n = 12$ (iv) $m = 6, n = 4$
- Q7.** Which of the following particles will experience largest force when projected perpendicular to a magnetic field with same velocity:
(i) electron (ii) proton (iii) He^+ (iv) Li^{++}

- Q8.** Two long, parallel wires, separated by a distance r , have an equal current I flowing through them. The magnetic field of one exerts a force F on the other. The distance r is increased to $2r$ and the current in each wire is reduced from I to $I/2$. What is the force between them now?
- (i) F (ii) $4F$
(iii) $\frac{F}{4}$ (iv) $\frac{F}{8}$
- Q9.** A magnet makes 5 oscillations per minute in $H = 0.3 \times 10^{-4} T$. By what amount the field should be increased so that the number of oscillations is 10 in the same time?
- (i) $0.3 \times 10^{-4} T$ (ii) $0.6 \times 10^{-4} T$
(iii) $0.9 \times 10^{-4} T$ (iv) $1.2 \times 10^{-4} T$
- Q10.** Why does a spark occur in a switch when the power line is put off?
- (i) Due to short circuit.
(ii) Due to overloading.
(iii) Due to induced emf.
(iv) All the above.
- Q11.** The maximum current through a pure capacitor of capacitance C is I_0 . The maximum emf is E_0 . If the frequency is 50 Hz, the average power dissipated through the capacitor is
- (i) $E_0 I_0 / 2$ (ii) Zero (iii) $E_0 I_0$ (iv) $I^2 / 100 \pi$
- Q12.** Electromagnetic wave is produced by
- (i) Static charge
(ii) Moving charge
(iii) Accelerated charge
(iv) In all above cases
- Q13.** An object is placed at 20 cm in front of a concave mirror of radius of curvature 15 cm. What is the position of image?
- (i) -12 cm (ii) 40 cm (iii) -60 cm (iv) 60 cm
- Q14.** In rainbow there is,
- (i) refraction of light (ii) total internal reflection
(iii) dispersion (iv) all of the above
- Q15.** The wave phenomena associated with holography is
- (i) Diffraction (ii) interference
(iii) polarisation (iv) refraction
- Q16.** Diffraction proves

- (i) Wave nature of light (ii) Particle nature of light
(iii) Both of the above (iv) none of the above
- Q17.** An X-ray tube produces a continuous spectrum of radiation with its short wavelength end at 0.45 \AA . What is the maximum energy of a photon in the radiation?
(i) $4.42 \times 10^{-13} \text{ J}$ (ii) $4.42 \times 10^{-15} \text{ J}$
(iii) $4.42 \times 10^{-19} \text{ J}$ (iv) none of these
- Q18.** With increasing quantum number, the energy difference between adjacent energy levels in atoms
(i) decreases
(ii) increases
(iii) remains constant
(iv) decreases for low z and increases for high z .
- Q19.** Radioactivity is
(i) irreversible process (ii) self disintegration process
(iii) spontaneous (iv) all the above.
- Q20.** Semiconductors exhibit which of the following opto-electronic properties?
(i) photoresistivity
(ii) photoconductivity
(iii) production of photoelectric currents
(iv) all of the above