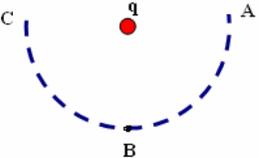


# KNOWLEDGE HORIZON CLASSES

## Test Series

- Q1.** What is the dimensional formula for  $\frac{1}{4\pi\epsilon_0}$
- (i)  $ML^2T^{-2}A^4$                       (ii)  $ML^3T^{-4}A^{-2}$   
 (iii)  $M^{-2}L^{-1}T^{-4}A^{-6}$               (iv)  $M^2L^2T^{-1}A^{-1}$
- Q2.** The electric field at a distance  $R$  due to charge  $q$  is  $E$ . If the same charge is placed on the copper sphere of radius  $R$ , the electric field strength at the surface of the conductor will be:
- (i)  $E/4$                                       (ii)  $E/2$   
 (iii)  $E$                                         (iv)  $2E$
- Q3.** The net work done in carrying a point charge from P to A is  $W_A$ , from P to B is  $W_B$  and from P to C is  $W_C$ . Then
- (i)  $W_A < W_B < W_C$   
 (ii)  $W_A > W_B > W_C$   
 (iii)  $W_A = W_B + W_C$   
 (iv)  $W_A = W_B = W_C$
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- Q4.** The dielectric constant  $K$  of an insulator can be:
- (i) -1                                        (ii) 0  
 (iii) 0.5                                      (iv) 6
- Q5.** A current of 4.8 amp flows in a wire. The number of electrons flowing per second through the wire:
- (i)  $3 \times 10^{19}$     (ii)  $76.8 \times 10^{20}$     (iii)  $7.68 \times 10^{20}$     (iv)  $3 \times 10^{20}$
- Q6.** The emf of a primary cell is 2V. When it is short-circuited, it gives 4 A current. Its internal resistance is:
- (i) 0.5 ohm            (ii) 5 ohm            (iii) 2 ohm            (iv) 8 ohm
- Q7.** Two magnetic lines of force:
- (i) intersect at the neutral point              (ii) intersect near north or south pole  
 (iii) can not intersect at all                      (iv) depend on the position of the magnet

- Q8.** Two parallel wires A and B carry currents of 10 amp and 2 amp respectively in opposite directions. The distance between the wires is 10 cm. If the wire A is infinitely long and the wire B has a length of 2 meters, then the force acting on B will be:  
 (i)  $8 \times 10^{-5}$  N  
 (ii)  $4 \times 10^{-5}$  N  
 (iii)  $8\pi \times 10^{-7}$  N  
 (iv)  $4\pi \times 10^{-7}$  N
- Q9.** At a certain place, the horizontal component of earth's magnetic field is  $\sqrt{3}$  times the vertical component. The angle of dip at that place is  
 (i)  $30^\circ$  (ii)  $60^\circ$  (iii)  $90^\circ$  (iv)  $45^\circ$
- Q10.** Which of the following is not equal to a Henry?  
 (i)  $\frac{\text{Volt second}}{\text{ampere}}$  (ii)  $\frac{\text{volt second}^2}{\text{coulomb}}$   
 (iii)  $\frac{\text{volt}^2 \text{ second}}{\text{coulomb}}$  (iv)  $\frac{\text{joule second}^2}{\text{coulomb}^2}$
- Q11.** The instantaneous current in a circuit is  $I = (1/\sqrt{2}) \sin(\omega t + \phi)$  A. The rms value of the current is  
 (i) 1 A (ii)  $\sqrt{2}$  A (iii)  $\frac{1}{2}$  A (iv)  $1/\sqrt{2}$  A
- Q12.** Which of the following are not electromagnetic waves?  
 (i) Cosmic rays (ii) Gamma rays  
 (iii)  $\beta$ -rays (iv) X-rays
- Q13.** Twinkling of stars in night is due to  
 (i) Atmospheric refraction (ii) reflection  
 (iii) total internal reflection (iv) polarization
- Q14.** The muscle of a normal eye are least strained when the eye is focused on an object  
 (i) far away from the eye (ii) very close to the eye  
 (iii) at about 25cm from the eye (iv) at about 1m from the eye
- Q15.** Which of the following does not support wave nature of light?  
 (i) Diffraction (ii) interference  
 (iii) polarization (iv) photoelectric effect
- Q16.** Which of the following properties show that light is a transverse wave?  
 (i) Reflection. (ii) Interference  
 (iii) Diffraction (iv) Polarisation

