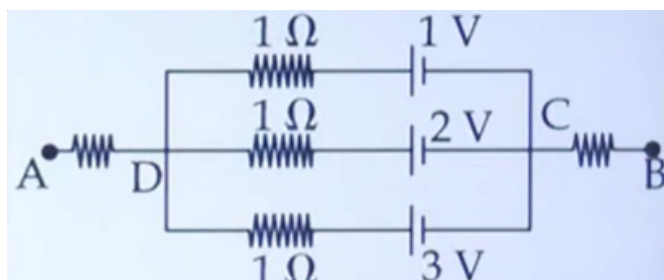




General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.
- (iii) The total number of questions are 50.
- (iv) Duration of the exam is 1 hour (60 minutes).

1. In the circuit shown below, the potential difference between A and B is:



- (A) 6 V
- (B) 3 V
- (C) 2 V
- (D) 1 V

2. The frequency of revolution of the electron in Bohr's orbit varies with n , the principal quantum number as

- (A) $\frac{1}{n}$
- (B) $\frac{1}{n^3}$
- (C) $\frac{1}{n^4}$
- (D) $\frac{1}{n^2}$

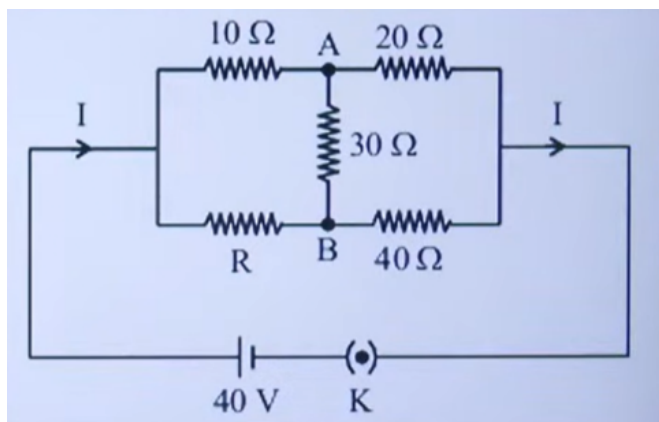
3. Which of the following phenomena cannot be explained by wave theory of light?

- (A) Reflection of light
 - (B) Diffraction of light
 - (C) Refraction of light
 - (D) Compton effect
-

4. A parallel plate capacitor with air between the plates has a capacitance of 6pF . What will be the capacitance if the distance between the plates is reduced to half and the space between them is filled with a substance of dielectric constant 5?

- (A) 30pF
 - (B) 60pF
 - (C) 15pF
 - (D) 120pF
-

5. The value of current I in the electrical circuit as given below, when potential at A is equal to the potential at B , will be ____ A.



- (A) 2A
 - (B) 3A
 - (C) 4A
 - (D) 5A
-

6. In a hydrogen atom an electron makes a transition from $n_1 \rightarrow n_2$, where n_1 and n_2 are the principal quantum numbers of these two states. Assuming Bohr's model to be valid, if the time period of electron in the initial state is eight times of that in the final state, the possible values of n_1 and n_2 are:

- (A) $n_1 = 8, n_2 = 4$
(B) $n_1 = 4, n_2 = 8$
(C) $n_1 = 8, n_2 = 2$
(D) $n_1 = 2, n_2 = 8$
-

7. An electric dipole of moment P is placed along the direction of electric field E . The work done in deflecting the dipole through 180° is equal to

- (A) PE
(B) $+2PE$
(C) $-2PE$
(D) Zero
-

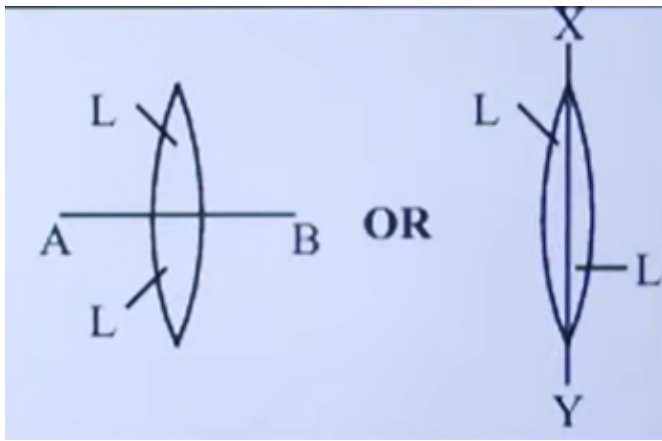
8. What is the unit of electric flux in terms of the base units of SI?

- (A) $kg^{-1}m^3s^{-3}A^{-1}$
(B) $kg m^3s^3A^{-1}$
(C) $kg m^3s^{-3}A^1$
(D) $kg m^3s^{-3}A^{-1}$
-

9. In terms of Bohr radius a_0 , the radius of 2^{nd} Bohr orbit of Hydrogen is:

- (A) $4a_0$
(B) $8a_0$
(C) $\sqrt{2}a_0$
(D) $2a_0$
-

10. Two identical symmetric double convex lenses of focal length f are cut into two equal parts L_1, L_2 by AB plane and L_3, L_4 by XY plane as shown in figure respectively. The ratio of focal lengths of lenses L_1 and L_3 is



- (A) 1 : 4
(B) 1 : 1
(C) 2 : 1
(D) 1 : 2
-