

FIRST MIDTERM TEST - 2024

PHYSICS

12 - Std

Marks : 35

I. Choose the Correct Answer :

1. Which charge configuration produces a uniform electric field?
 - a) point charge
 - b) infinite uniform line charge
 - c) uniformly charged infinite plane
 - d) uniformly charged spherical shell
2. An electric dipole is placed at an alignment angle of 30° with an electric field of $2 \times 10^5 \text{ NC}^{-1}$. It experiences a torque equal to 8 Nm . The charge on the dipole if the dipole length is 1 cm is
 - a) 4 mC
 - b) 8 mC
 - c) 5 mC
 - d) 7 mC
3. If voltage applied on a capacitor is increased from V to $2V$, choose the correct conclusion.
 - a) Q remains the same, C is doubled
 - b) Q is doubled, C doubled
 - c) C remains same, Q doubled
 - d) Both Q and C remain same
4. A toaster operating at 240 V has a resistance of 120Ω . The power is
 - a) 400 W
 - b) 2 W
 - c) 480 W
 - d) 240 W
5. A carbon resistor of $(47 \pm 4.7) \text{ k} \Omega$ to be marked with rings of different colours for its identification. The colour code sequence will be
 - a) Yellow - Green - Violet - Gold
 - b) Yellow - Violet - Orange - Silver
 - c) Violet - Yellow - Orange - Silver
 - d) Green - Orange - Violet - Gold
6. In a large building, there are 15 bulbs of 40 W , 5 bulbs of 100 W , 5 fans of 80 W and 1 heater of 1 kW are connected. The voltage of electric mains is 220 V . The minimum capacity of the main fuse of the building will be
 - a) 14 A
 - b) 8 A
 - c) 10 A
 - d) 12 A
7. There is a current of 1.0 A in the circuit shown below. What is the resistance of P ?
 - a) 1.5Ω
 - b) 2.5Ω
 - c) 3.5Ω
 - d) 4.5Ω



