DPP-6

1. Time taken by a 836 W heater to heat one litre of water from 10°C to 40°C is:
    (A) 150 s   (B) 100 s   (C) 50 s   (D) 200 s

2. A heater coil is cut into two equal parts and only one part is now used in the heater. The heat generated will now be:
    (A) Four times   (B) Doubled   (C) Halved   (D) One fourth

3. Two electric bulbs marked 25 W − 220 V and 100 W − 220 V are connected in series to a 440 V supply. Which of the bulbs will fuse?

    (A) Neither   (B) Both   (C) 100 W   (D) 25 W

4. A 6.0 volt battery is connected to two light bulbs as shown in figure. Light bulb-1 has resistance 3 ohm while light bulb-2 has resistance 6 ohm. Battery has negligible internal resistance. Which bulb will glow brighter?
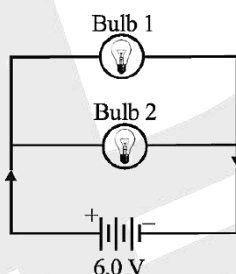
    (A) Bulb-1 will glow more first and then its brightness will become less than bulb-2
    (B) Bulb-1
    (C) Bulb-2
    (D) Both glow equally

5. Four bulbs B_1, B_2, B_3 and B_4 of 100 W each are connected to 220 V main as shown in the figure. The reading in an ideal ammeter will be:
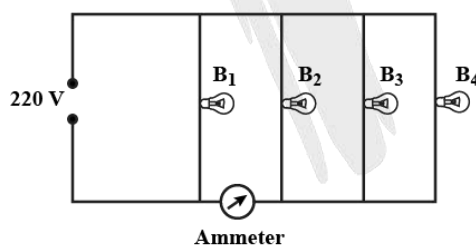
    (A) 0.45 A   (B) 0.90 A   (C) 1.35 A   (D) 1.80 A

6. The figure shows three circuits I, II, and III which arf connected to a 3 V battery. If the powers dissipated by th configurations I, II, and III are P_1, P_2 and P_3 respectively, then
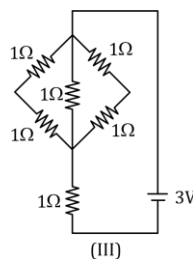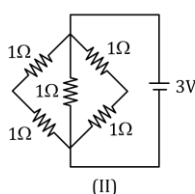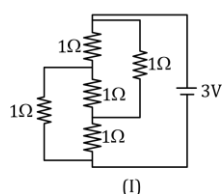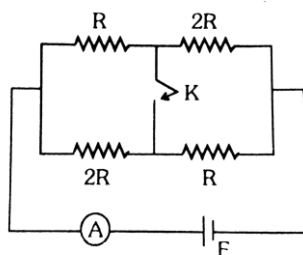

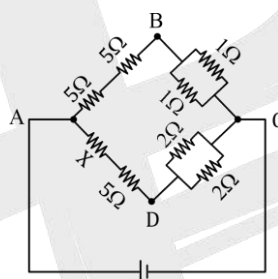   (A) $P_1 > P_2 > P_3$ (B) $P_1 > P_3 > P_2$ (C) $P_2 > P_1 > P_3$ (D) $P_3 > P_2 > P_1$

7.   The ratio of currents as measured by ammeter in two cases (when the key is open and when the key is closed) is


(A) $\frac{9}{8}$ (B) $\frac{10}{11}$ (C) $\frac{8}{9}$ (D) None of these

8.   In the given bridge the value of X for which the potential difference between the points B and D will be zero, is

(A) 5Ω   (B) 10Ω   (C) 15Ω   (D) 20Ω

9.   A battery of internal resistance 4Ω is connected to a network of resistances as shown. In order that the maximum power can be delivered to the network, the value of R in ohm should be
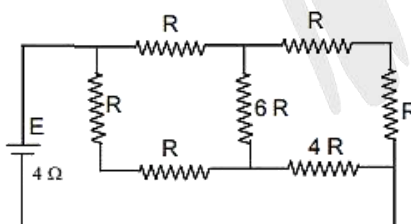
(A) $\frac{4}{9}$ (B) 2   (C) $\frac{8}{3}$ (D) 18

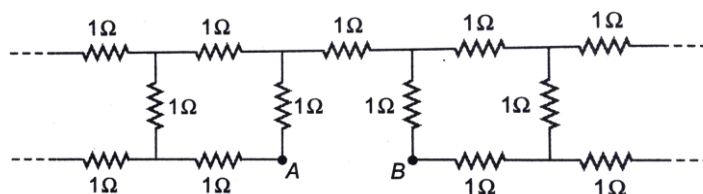10.   In the network shown below, the equivalent resistance between A and B is
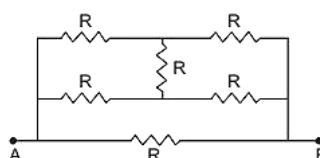
(A) $\frac{R}{2}$ (B) R   (C) 2R   (D) 4R

11. Each resistor shown in figure is an infinite network of resistance 1Ω. The effective resistance between points A and B is

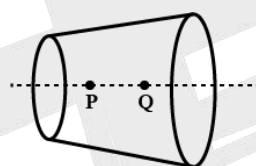(A) less than 1Ω   (B) 1Ω

(C) more than 1Ω but less than 3Ω   (D) 3Ω

12. A wire has a non-uniform cross-section as shown in figure. A steady current flows through it. The drift speed of electrons at points P and Q is v_P and v_Q.

(A) $v_P = v_Q$ (B) $v_P < v_Q$ (C) $v_P > v_Q$ (D) Data Insufficient

ANSWER KEY

1.	(A)	**2.**	(B)	**3.**	(D)	**4.**	(B)	**5.**	(C)	**6.**	(C)	**7.**	(C)
8.	(C)	**9.**	(B)	**10.**	(A)	**11.**	(C)	**12.**	(C)				