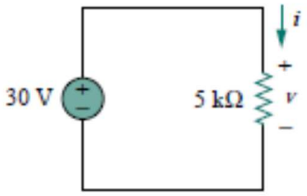
Objective Questions on DC circuits

1. The unit of current is:
(a) Coulomb (b) Ampere (c) Volt (d) Joule
Ans:B

2. Voltage is measured in:
(a) Watts (b) Amperes (c) Volts (d) Joules per second
Ans:C

3. Which of these is not an electrical quantity?
(a) charge (b) time (c) voltage
(d) current (e) power
Ans:B

4. In the circuit shown in Fig., calculate the current *i*, the conductance *G*, and the power *p*.

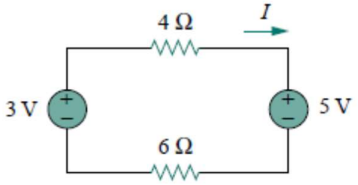


A. 6mA,0.5mS, 180mW B. 6mA,0.2mS, 150mW C.6mA,0.2mS, 180mW
D. 6mA,5mS, 180mW
Ans:C

5. The reciprocal of resistance is:
(a) voltage (b) current (c) conductance (d) coulombs
Ans:C

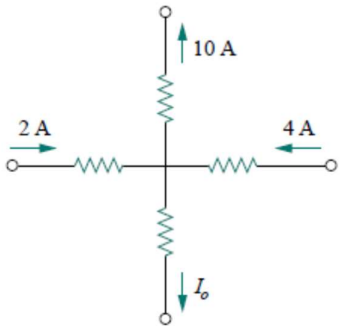
6. An electric heater draws 10 A from a 120-V line. The resistance of the heater is:
(a) 1200 ohm (b) 120-ohm c) 12 ohm (d) 1.2 ohm
Ans:C

7. The current *I* in the circuit in Fig. is:



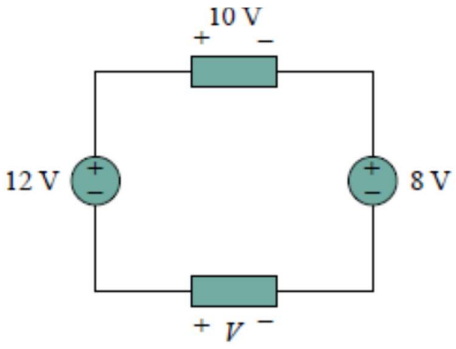
(a) −0.8 A (b) −0.2 A (c) 0.2 A (d) 0.8 A
Ans:b

8. The current *Io* in Fig. is:



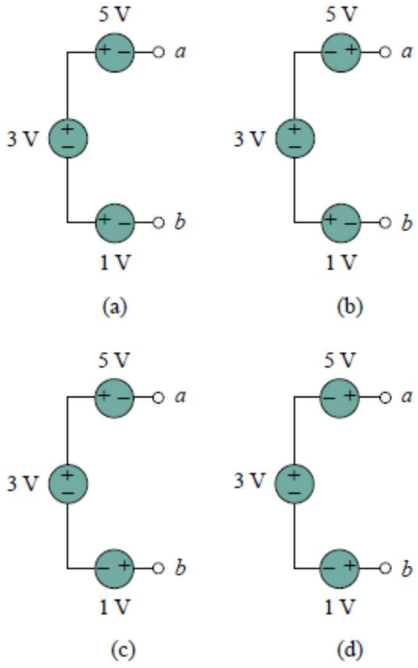
(a) −4 A (b) −2 A (c) 4 A (d) 16 A
Ans:A

9. In the circuit in Fig, *V* is:
(a) 30 V (b) 14 V (c) 10 V (d) 6 V



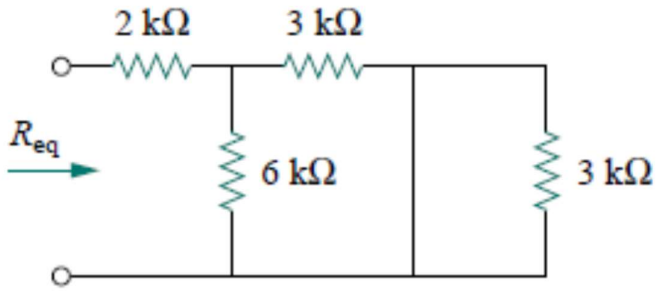
Ans:D

10. Which of the circuits in Fig. will give you *Vab* = 7 V?



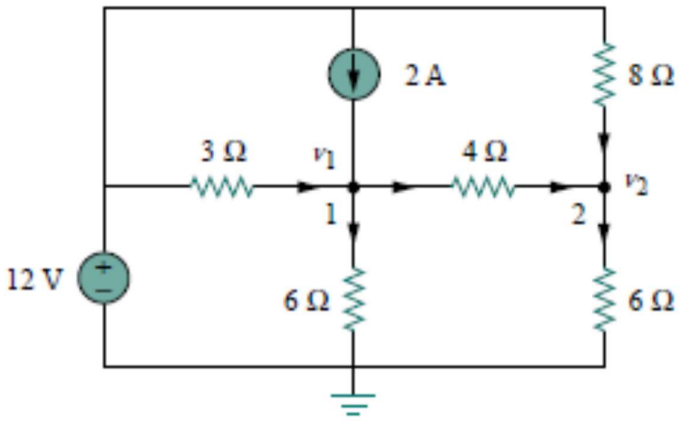
Ans:D

11. The equivalent resistance of the circuit in Fig. is:



(a) 4 kohm (b) 5 kohm (c) 8 kohm (d) 14 kohm
Ans:a

12. At node 1 in the circuit in Fig. , applying KCL gives:



(a) $2+\frac{12-v_1}{3}=\frac{v_1}{6}+\frac{v_1-v_2}{4}$

(b) $2+\frac{v_1-12}{3}=\frac{v_1}{6}+\frac{v_2-v_1}{4}$

(c) $2+\frac{12-v_1}{3}=\frac{0-v_1}{6}+\frac{v_1-v_2}{4}$

(d) $2+\frac{v_1-12}{3}=\frac{0-v_1}{6}+\frac{v_2-v_1}{4}$

Ans.a

13. In the circuit in Fig. of question 12, applying KCL at node 2 gives:

(a) $\frac{v_2-v_1}{4}+\frac{v_2}{8}=\frac{v_2}{6}$

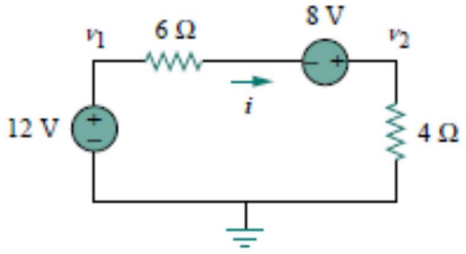
(b) $\frac{v_1-v_2}{4}+\frac{v_2}{8}=\frac{v_2}{6}$

(c) $\frac{v_1-v_2}{4}+\frac{12-v_2}{8}=\frac{v_2}{6}$

(d) $\frac{v_2-v_1}{4}+\frac{v_2-12}{8}=\frac{v_2}{6}$

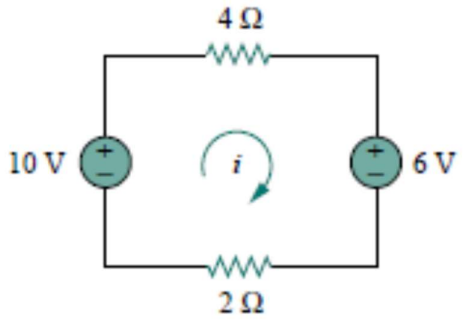
Ans:c

14. In the circuit in Fig, the voltage *v*2 is:



(a) −8 V (b) −1.6 V (c) 1.6 V (d) 8 V
Ans:d

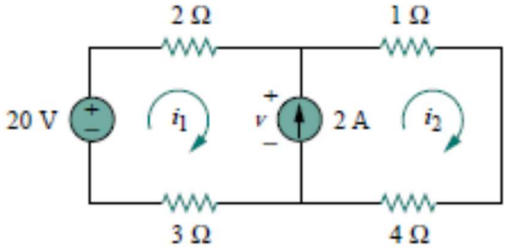
15. The current i in the circuit in Fig. is:



(a) −2.667 A (b) −0.667 A (c) 0.667 A (d) 2.667 A
Ans:c

16. The loop equation for the circuit in Fig. of question no. 15 is:
(a) $-10 + 4i + 6 + 2i = 0$
(b) $10 + 4i + 6 + 2i = 0$
(c) $10 + 4i - 6 + 2i = 0$
(d) $-10 + 4i - 6 + 2i = 0$
Ans.A

17. In the circuit in Fig., current $i1$ is:



(a) 4 A (b) 3 A (c) 2 A (d) 1 A
Ans:d

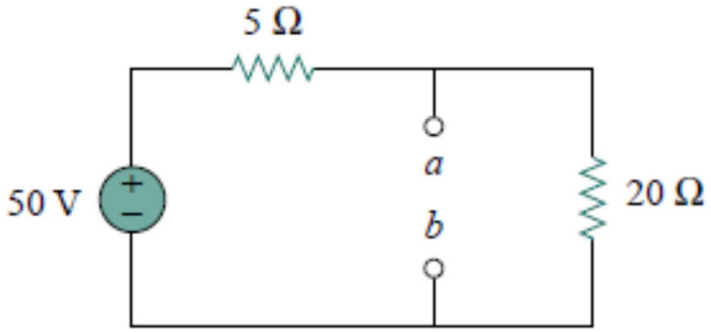
18. The voltage v across the current source in the circuit of Fig. of question no. 17 is:
(a) 20 V (b) 15 V (c) 10 V (d) 5 V
Ans:B

19. The superposition principle applies to power calculation.

(a) True (b) False

Ans:b

20. The Thevenin resistance at terminals ab is



(a) 25 *ohm* (b) 20 *ohm* (c) 5 *ohm* (d) 4 *ohm*

Ans:d

21. The Thevenin voltage across terminals *a* and *b* of the circuit in Fig. of question 20 is:

(a) 50 V (b) 40 V (c) 20 V (d) 10 V

Ans:b

22. A load is connected to a network. At the terminals to which the load is connected, *R*Th = 10 *ohm* and *V*Th = 40 V. The maximum power supplied to the load is:

(a) 160 W (b) 80 W (c) 40 W (d) 1 W

Ans:c