Question Paper

# MANIPAL ACADEMY OF HIGHER EDUCATION

B.Tech. First Semester 1st Sessional Examination - November 2022

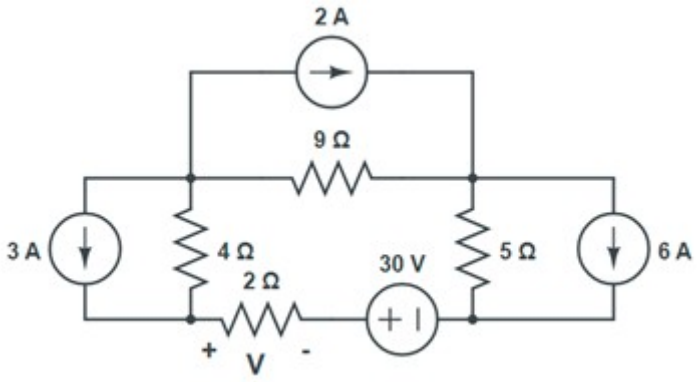
**BASIC ELECTRICAL TECHNOLOGY [ELE 1071]**

**Marks: 15** **Duration: 60 mins.**

**MCQ**

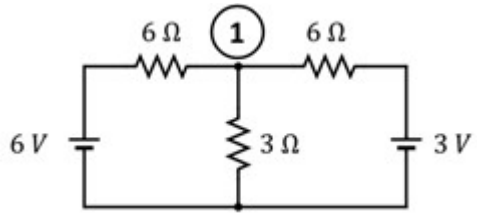
**Answer all the questions.** Section Duration: 20 mins

1) The value of **voltage V** in the circuit shown is: (1)



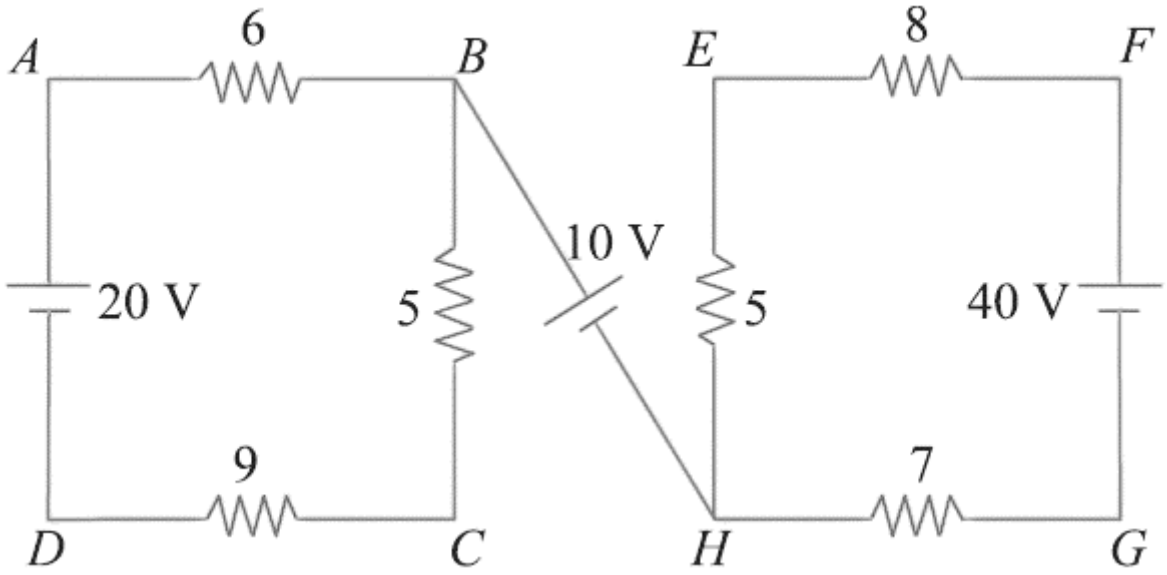

3 V - 3 V - 6.6 V 6. 6 V

2) The potential of **Node 1** in the circuit shown is: (1)



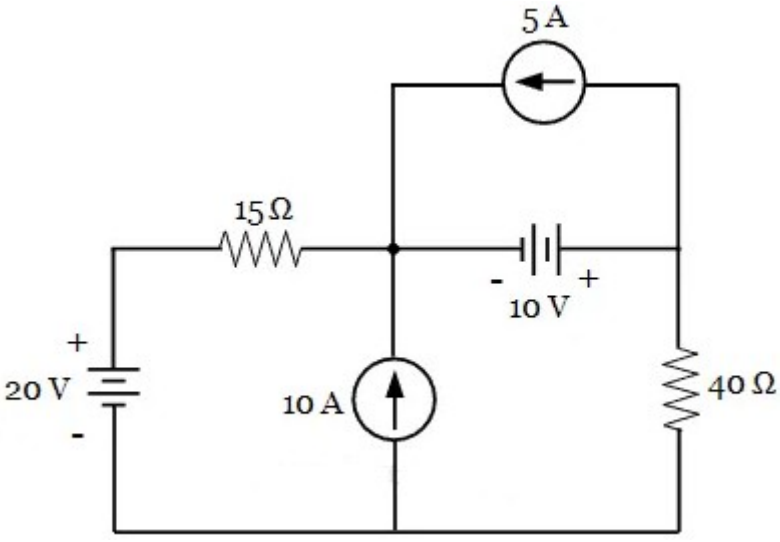

4.5 V 9 V 1.5 V 2.25 V

3) For the circuit, with all resistances in **Ohms**, the voltage $\mathbf{V_{AF}}$ is: (1)




30 V  - 10 V  10 V  0 V

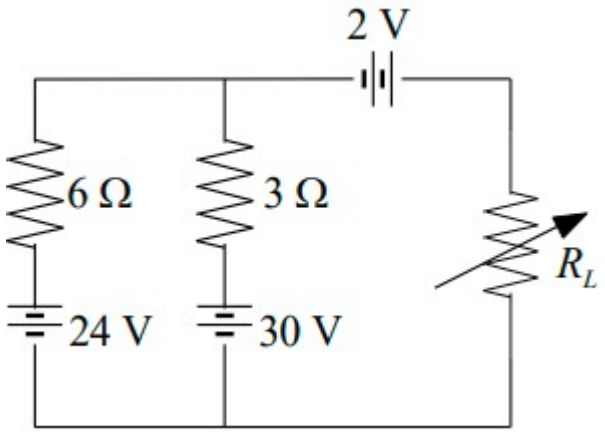
4) In the circuit shown, based on **superposition** principle, the voltage & current across **15 Ω** resistor due to **5 A** source acting alone are respectively,




(1)

20.45 V & 1.36 A  54.54 V & 3.64 A  0 V and 0 A  75 V & 5 A

5) In the circuit shown, the maximum power delivered to the load resistor $\mathbf{R_L}$ is (1)

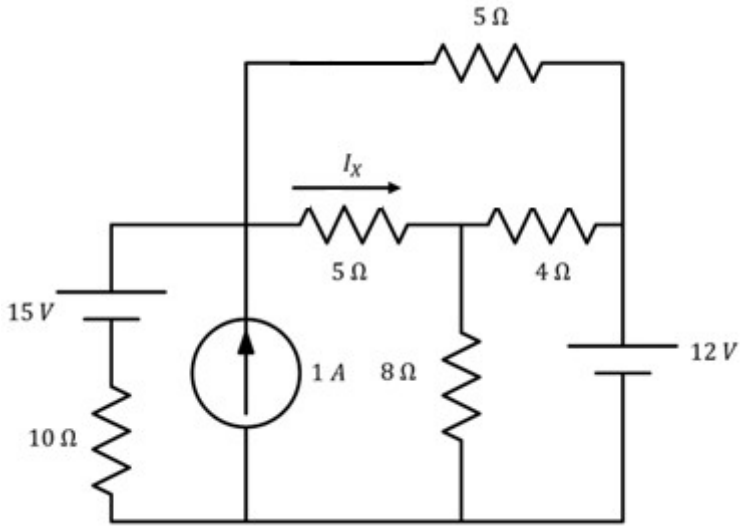



98 W  144.5 W  60.5 W  112.5 W

**DESCRIPTIVE**

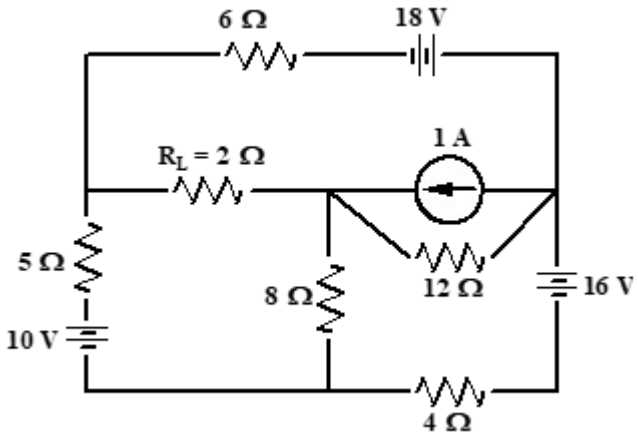
**Answer all the questions.**

1) Using **superposition** principle, determine the current $\mathbf{I_x}$ as shown.



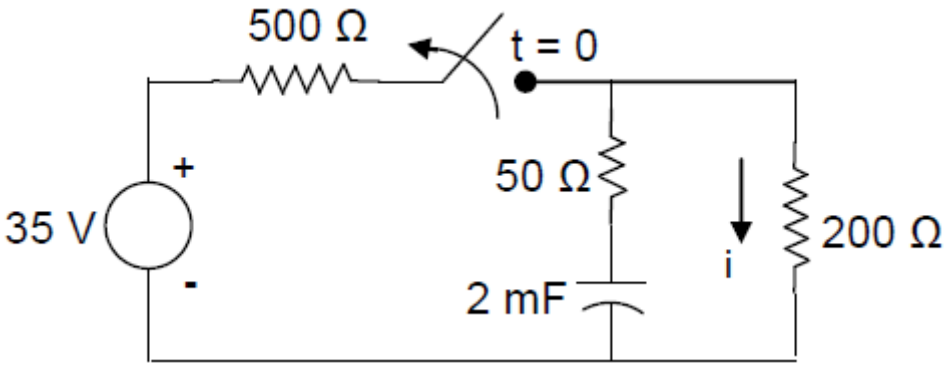

(4)

2) For the circuit shown, find the **Thevenin's** equivalent across the load resistance $\mathbf{R_L}$ **= 2 Ω.**




(3)

3) In the given circuit, the switch was in the closed position for a long time and opened at **t = 0.** Find the current **i(t)** as shown and the voltage across capacitor, $\mathbf{V_c(t)}$ for **t > 0**.




(3)

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