



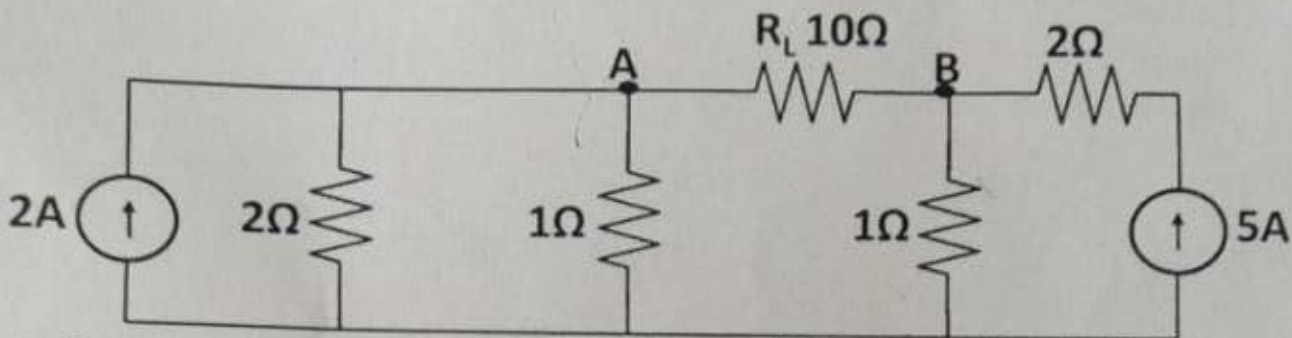
## Final Assessment Test (FAT) – January/February 2023

Programme	B.Tech.	Semester	Fall Semester 2022-23
Course Title	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	Course Code	BEEE102L
Faculty Name	Prof. Iyswarya Annapoorani K	Slot	B1+TB1
		Class Nbr	CH2022231700068
Time	3 Hours	Max. Marks	100

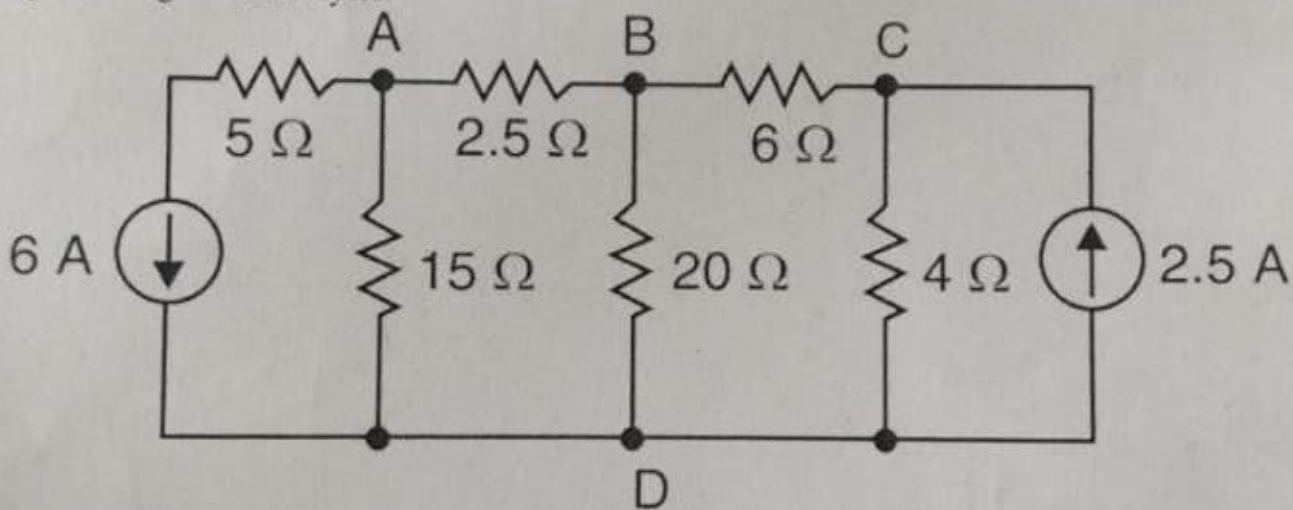
## Part A (10 X 10 Marks)

Answer All questions

1. For the circuit shown in figure, obtain the Thevenin's equivalent circuit and find the load current. [10]



2. Solve for nodal voltages  $V_a$ ,  $V_b$  and  $V_c$  at the nodes A, B and C respectively in the circuit shown in figure using nodal analysis. [10]



3. A 400 V, 3-phase supply is connected across a balanced load of three impedances each consisting of a  $32\text{-}\Omega$  resistance and  $24\text{-}\Omega$  inductive reactance in series. Determine the current drawn from the supply, if the three impedances are (a) Y-connected (b)  $\Delta$ -connected [10]

4. A steel ring of cross sectional area  $50\text{ mm}^2$  has an air gap of 2 mm and has the same cross sectional area as the steel ring. A coil of 2000 turns is wound uniformly around the steel ring. If the current in the coil is 10 A, the mean radius of the steel ring is 5 cm and relative permeability  $\mu_r$  is 800, find [10]
- total reluctance of the circuit
  - the flux in the ring