College of Engineering, Pune

(An Autonomous Institute of Government of Maharashtra)

Department of Electrical Engineering

T-1 Examination-2022

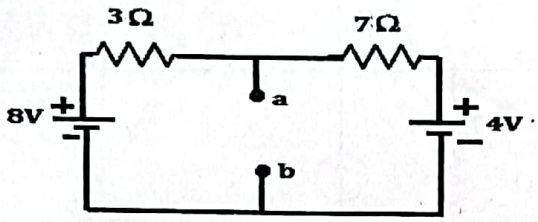
Course:-Basic Electrical Engineering (E-Group)

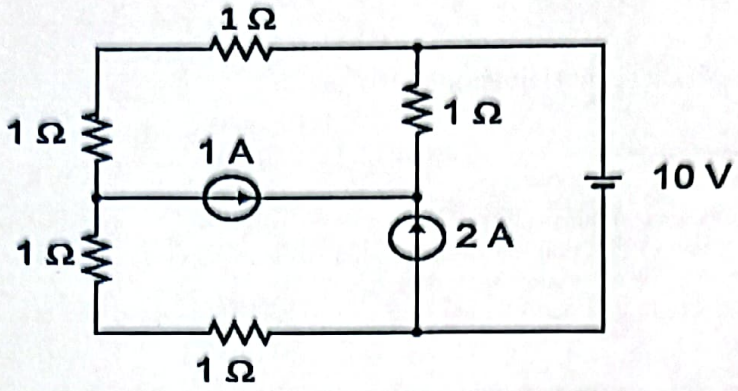
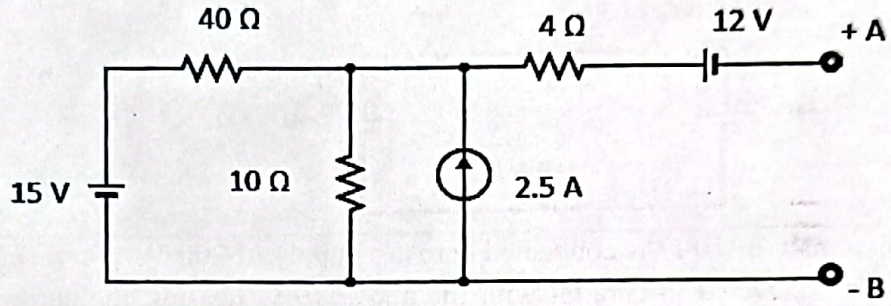
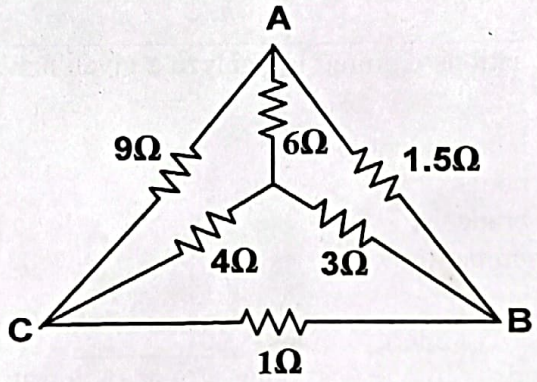
Programme: F. Y. B. Tech. (Division 6-10)
Max. Marks: 20

Date: 18.06.2022
Time: 2 -3 pm

Instructions:-

1. All questions are compulsory.
2. Make necessary assumptions and assume suitable data wherever required.
3. Non programmable calculator is allowed.
4. Figures to the right indicate full marks

Q. 1	**Rewrite** the following with correct answer.	5
i.	Voltage appearing across terminals a and b in the following circuit is _____ a) 10 V b) 2.1 V c) 5 V d) 6.8 V 	
ii.	A resistance of 10 Ω is connected across a supply of 200 V. When another resistance of R Ω is connected in parallel with the above 10 Ω resistor, the current drawn from the supply doubles. The value of R is ____. a) 5 Ω b) 10 Ω c) 20 Ω d) 40 Ω	
iii.	The superposition theorem is essentially based on the concept of _____. a) duality b) reciprocity c) linearity d) non-linearity	
iv.	The number of equations required to analyze a given network by nodal analysis is equal to _____. a) the number of independent loops b) the number of nodes c) the number of branches d) one less than number of nodes	
v	One commercial unit of energy equals _____ a) 500 watt seconds b) one watt hour c) one kilowatt hour d) ten kilowatt hour	

Q. 2	Solve the following problems:	
(i)	In the circuit shown below, find the power supplied by the voltage source. (Do not use source transformation) 	5
(ii)	Use superposition theorem to find the voltage across terminals A & B in the Fig below. (Do not use source transformation) 	5
(iii)	A network of resistors is shown in Fig below. Find the resistances (a) between terminals A & B, (b) between terminals B & C and (c) between terminals C & A. 	5