Code No: 152AC **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year II Semester Examinations, November/December - 2020
BASIC ELECTRICAL ENGINEERING
(Common to ECE, EIE)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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1.a) Explain the V-I relationship of R, L and C elements.
b) By using Norton's theorem shown in figure 1 find the current in the 6Ω resistor. [6+9]

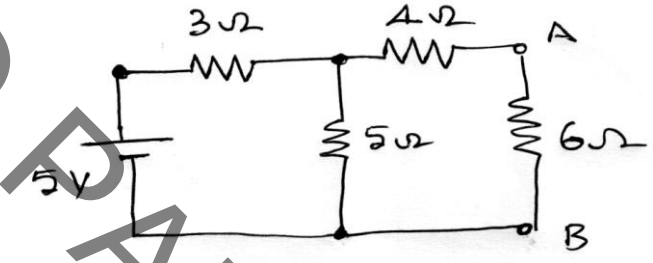


Figure: 1

2.a) State and explain Kirchhoff's laws by taking any one example. [6+9]
b) By using Thevenin's theorem shown in figure 2 find the current in the 10Ω resistor.

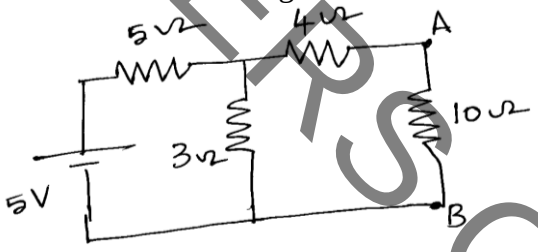


Figure: 2

3. Derive the relation between phase and line values in a balanced star connected three phase system. [15]

4. A series circuit consisting of a 10 ohms resistor, a 100 μF capacitance and 10 mH inductance is driven by a 50 Hz, AC voltage source of maximum value 100 V. Calculate the equivalent impedance, current in the circuit, the power factor and power dissipated in the circuit. [15]

5.a) Explain the losses that occur in Transformers.
b) A single phase transformer working at unity power factor has an efficiency of 80% at both one half load and at the full load of 500 W. Determine the efficiency at 75% of full load. [7+8]

6. Explain in detail the three phase transformer connections. [15]

7.a) Explain the constructional details of 3 – ϕ Induction motor.
b) A 3 – ϕ, 4 pole, 60Hz cage motor is running with a slip of 4%. Find i) Speed of rotating field relative to stator winding ii) Motor speed iii) slip speed. [9+6]

8. Explain in detail the types of wires and cables. [15]

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