Code No: 152AC

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech I Year II Semester Examinations, July/August - 2021
BASIC ELECTRICAL ENGINEERING
(Common to ECE, EIE)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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1.a) What are the limitations of superposition theorem?
b) Find the current 'i' in the circuit below shown in figure 1 using Thevenin's theorem. [5+10]

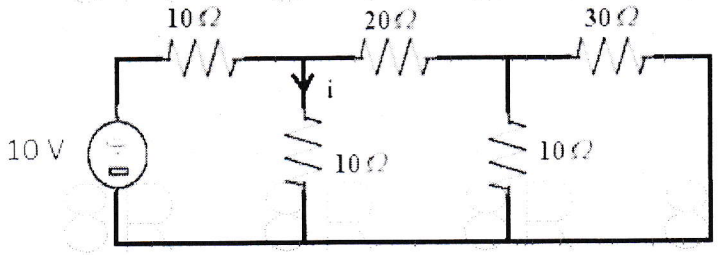

Figure: 1

2.a) Define time constant. What is the time constant of RL circuit?
b) Find the current 'i' in the circuit below shown in figure 2 using Nortan's theorem. [5+10]

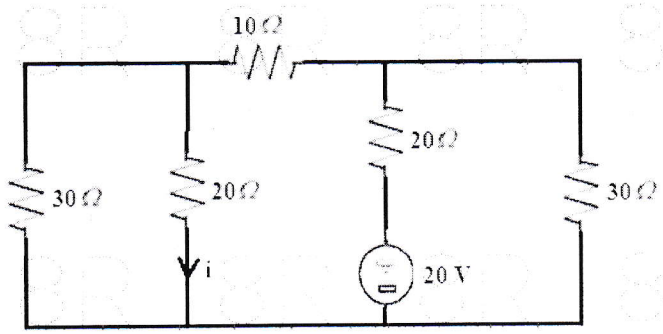

Figure: 2

3.a) What are the advantages of phasor representation?
b) A circuit consisting of a coil resistance 10Ω and inductance 0.2 H in series with a capacitor of 10 μF is connected to a variable frequency supply which has a constant voltage of 30 V. Calculate the resonant frequency and current in circuit at resonance. [5+10]

4.a) Define phase sequence. Obtain the relationship between line and phase values of star connected system with 3-ϕ star supply.
b) A series circuit with a resistor of 50 Ω, capacitor of 20 μF and inductance of 0.2 H is connected across 230 V, 50 Hz supply. Calculate current, power and power factor in the circuit. [8+7]

5.a) What are the main applications of auto transformers? [5+10]
b) How a single phase transformer works? Explain.

6.a) Draw the equivalent circuit of transformer and Explain. [8+7]
b) Explain the working of single phase induction motor.

7.a) Draw the characteristic between torque and slip in three phase induction motor. [7+8]
b) What is a cable? Explain different types of cables.

8.a) What are the applications of MCB? Explain its working principle. [7+8]
b) Discuss about various types of batteries.

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