

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2019

Course: B. Tech in Electrical Engineering

Sem: III

Subject Name: Network Analysis And Synthesis.

Subject Code: BTEEC 302.

Max Marks:60

Date:29/05/2019

Duration: 3 Hr.

Instructions to the Students:

1. Solve ANY FIVE questions out of the following.
2. The level question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
Q.1 Solve Any Two of the following.		
A) Explain various types of Electrical sources.	(CO1)	5M
B) Explain the		
i. Active & Passive Circuit Element	(CO1)	5M
ii. Linear & non-linear Circuit Element		
iii. Unilateral & Bilateral Circuit Element		
C) Explain with an Example Superposition theorem.	(CO2)	5M
Q.2 Solve Any Two of the following.		
A) Define the terms with an example:	(CO1)	5M
i. Tree ii. Co-Tree, iii. Twigs and Links (chords)		
B) Explain Equilibrium equation on loop basis.	(CO2)	5M
C) What is Duality and dual network? Explain Duality and dual network with an example.	(CO2)	5M
Q.3 Solve the following.		
A) Explain first order series R-L circuit.	(CO2)	5M
B)		

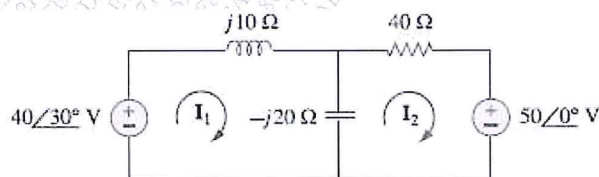


Fig.1

(CO4) 5M

For the circuit in Fig. 1, find 'I1' and 'I2' by Mesh Analysis



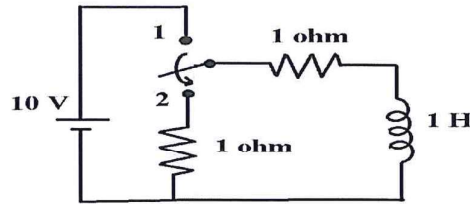
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Q.4 Solve Any Two of the following.

- A) Calculate the Laplace transform for
i. Unit step function
ii. Ramp function
iii. Impulse function

(CO3) 5M

B)

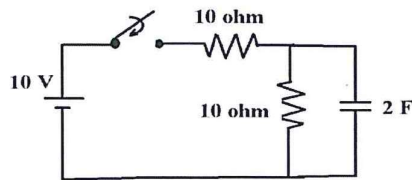


(CO3) 5M

Fig.2

In the network of Fig.2 the switch is moved from the position 1 to 2 at $t = 0$, steady state conditions having been established in the position 1. Determine $i(t)$ for $t > 0$ at position 2.

C)



(CO3) 5M

Fig.3

The switch in the network shown in Fig.3 is closed at $t = 0$. Determine the Voltage across the Capacitor at $t > 0$

Q. 5 Solve Any Two of the following.

- A) Explain Open circuit Impedance (Z) parameters.
B) Explain Short circuit Admittance (Y) parameters.
C) Explain Z-parameters in terms of Y-parameter and Y-parameters in terms of Z-parameter

(CO2) 5M

(CO2) 5M

(CO2) 5M

Q. 6 Solve the following.

- A) Explain i. LC Low Pass Filter ii. LC High Pass Filter
B) A T-section low pass filter has series inductance 80 mH and shunt capacitance $0.022 \mu\text{F}$. Determine the cut-off frequency and nominal design impedance (R_0). Also design an equivalent π -section.

(CO4) 5M

(CO4) 5M

End

