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Question Paper Code: 53403

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Electronics and Communication Engineering

19UEC303 - CIRCUIT THEORY

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

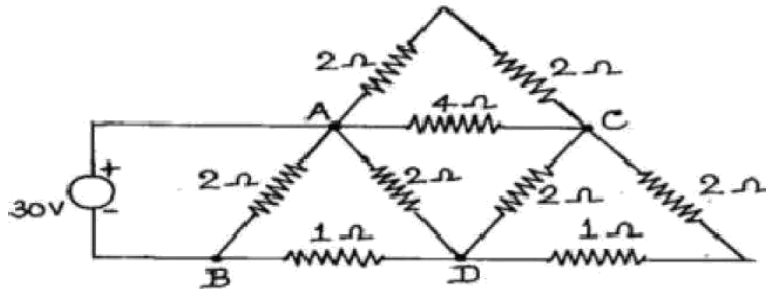
- Ohms law holds true only for _____ circuits CO1- R
(a) Linear (b) Non-linear (c) Unilateral (d) None
- If a resistor has 5.5V across it and 3mA flowing through it, what is the power CO1- R
(a) 16.5mW (b) 15mW (c) 1.83mW (d) 16.5W
- Which of the following theorem is applicable for both linear and nonlinear circuits? CO2- U
(a) Superposition theorem. (b) Thevenin's theorem
(c) Norton's theorem (d) None of the above.
- Superposition theorem is valid only for CO2- U
(a) Linear circuit (b) Non-linear circuit
(c) both linear and non-linear (d) None of the above
- What is the phase angle of a series RLC circuit at resonance? CO3-U
(a) Zero (b) 90^0 (c) 45^0 (d) 30^0
- The maximum value of coefficient of coupling is CO3-U
(a) 100% (b) more than 100% (c) 90% (d) 50%
- The time constant of the RL series circuit with $R=5\Omega$ and $L=0.1H$ is CO4-R
(a) 0.05ms (b) 20ms (c) 0.5ms (d) 2ms
- The Transient response occurs CO4-R
(a) only in resistive circuits (b) only in capacitive circuits
(c) only in inductive circuits (d) both in (b) and (c)

9. The number of possible combinations generated by four variables taken two at a time in a Two- port network is CO5-R
- (a) Four (b) two (c) six (d) eight
10. The impedance parameters is also known as CO5-R
- (a) open circuit (b) short circuit (c) hybrid circuit (d) none of these

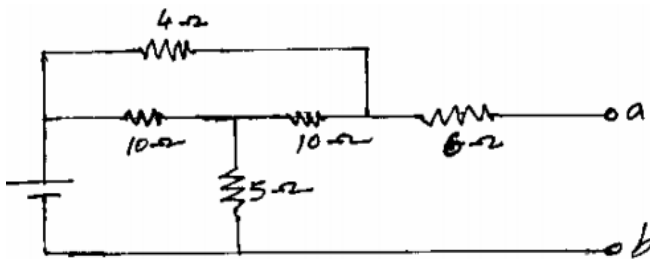
PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Interpret the current delivered by the source shown in the circuit below. CO1-App (8)



12. Find the Thevenin's equivalent circuit for the given network which contains 75v power supply. CO2- App (8)



13. Derive the bandwidth of a series RLC circuit CO3- U (8)
14. In the series RL circuit the value of $R=2\ \Omega$, $L=5\ H$. Find an expression for the current $i(t)$, when a switch is closed at $t=0$. The supply voltage is 20V CO4- E (8)
15. Find the h-parameter for the network given below CO5- U (8)

