

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

Nov./Dec-2021-(Feb.-2022)

Program: B.Tech (Electronics and Telecommunication)

Examination: DSY Semester: III

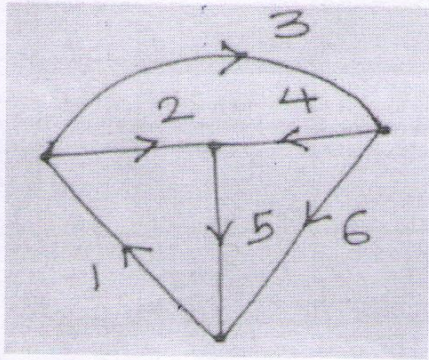
Course Code: 1UEXC305 and Course Name: Electrical Network Theory

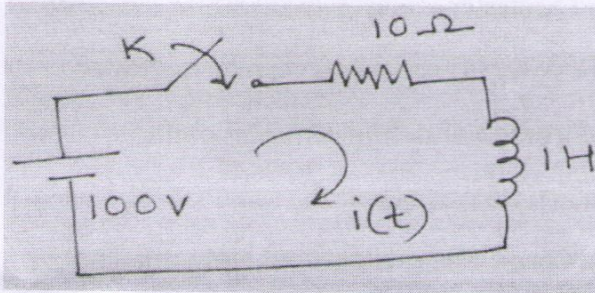
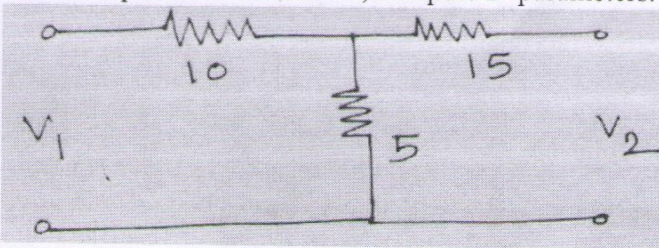
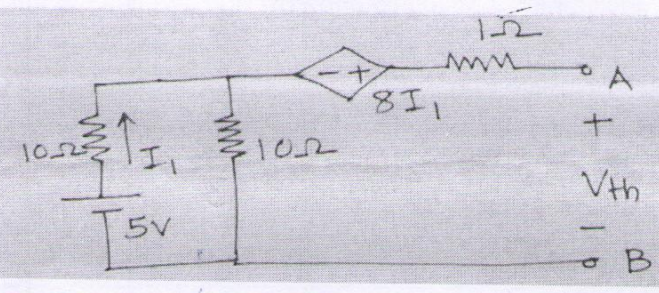
Duration: 02Hours

Max. Marks: 45

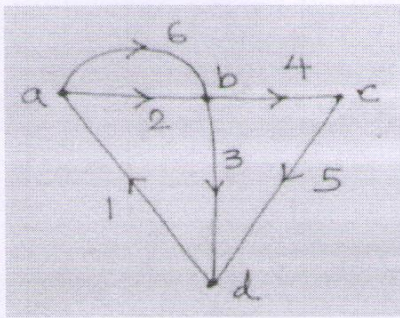
Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

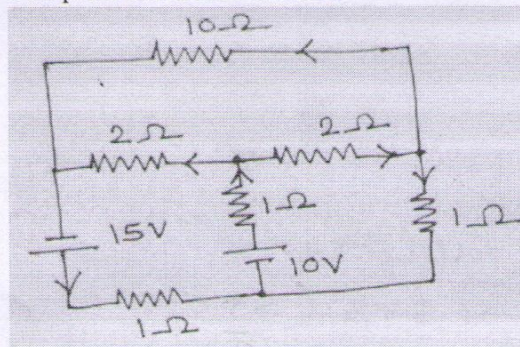
		Max. Marks	CO	BT level
Q 1	Solve any 5 questions out of six.	15		
i)	State any three properties of positive real function.	3	CO6	1
ii)	Draw possible trees for given graph. 	3	CO2	3

iii)	<p>In the network shown, switch K is closed at $t = 0$, calculate $i(t)$, $\frac{di(t)}{dt}$ at $t = 0+$.</p> 	3	CO3	3
iv)	<p>For a two port network shown, compute z-parameters.</p> 	3	CO4	
v)	<p>For the network function given, draw pole-zero plot.</p> $F(s) = \frac{10(s+2)}{s(s+3)(s+5)}$	3	CO5	3
vi)	<p>Calculate V_{th} across A-B terminals.</p> 	3	CO1	3
Q. 2	Solve any three questions out of four.	15		
i)	compute current i by Superposition theorem.	5	CO1	3

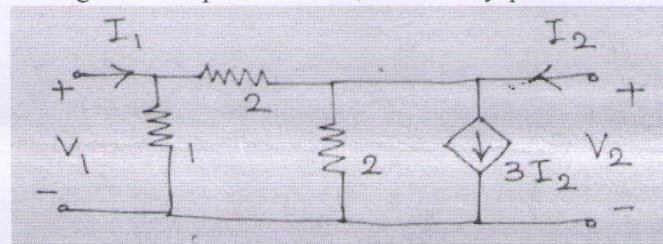
ii)	<p>In the circuit, initially switch is kept at A for a long time. At $t = 0$, switch is moved from A to B. calculate expression for $i(t)$ at $t > 0$.</p>	5	CO3	3
iii)	<p>Test whether $F(s)$ is positive real.</p> $F(s) = \frac{s^2 + 6s + 5}{s^2 + 9s + 14}$	5	CO6	
iv)	<p>calculate loop currents by Mesh analysis.</p>	5	CO1	3
Q. 3	<p>Solve any three questions out of four.</p>	15		
i)	<p>Compute Reduced Incidence Matrix for the given graph.</p>	5	CO2	3



ii) For the network given, draw oriented graph and obtain Complete Incidence Matrix.



iii) For a given two port network, calculate y parameters.



iv) Test the following polynomials whether Hurwitz or not.

$$s^4 + s^3 + 4s^2 + 2s + 3$$

5

CO2

3

5

CO4

3

5

CO5

3