

University of Mumbai

Examination 2020

Program: BE Electronics Engineering

Curriculum Scheme: Revised 2016 (CBCGS)

Examination: Second Year Semester III

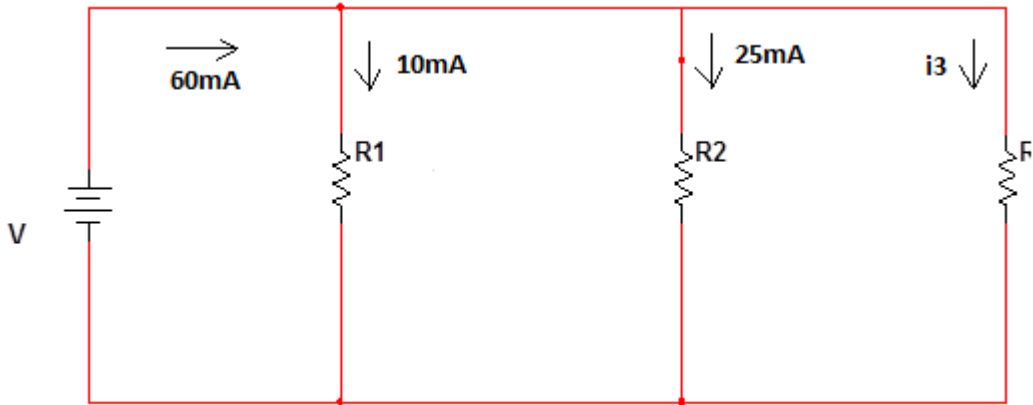
Course Code: ELX304 Course Name: ENAS

Time: 1 hour

Max. Marks: 50

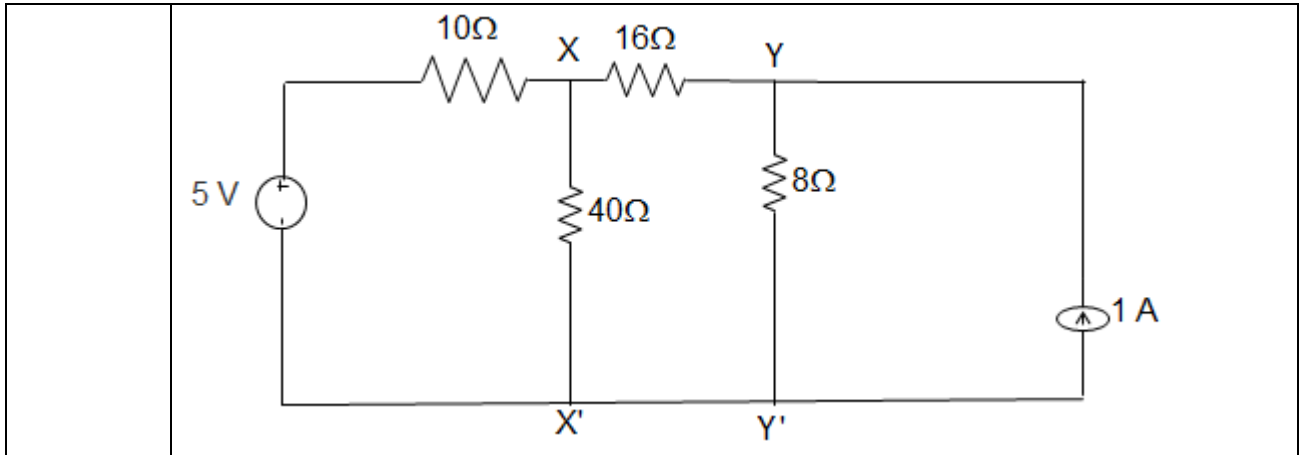
Note:

1. All Questions are compulsory and carry equal marks.
2. Assume suitable data wherever necessary.

Q1.	A 25Ω resistor has a voltage of $150 \sin 377 t$. Find the corresponding power.
Option A:	$900 \sin^2 337 t$
Option B:	$90 \sin^2 337 t$
Option C:	$900 \sin^2 377 t$
Option D:	$9 \sin^2 337 t$
Q2.	Inductance of an inductor is inversely proportional to its _____
Option A:	Number of turns
Option B:	Area of cross section
Option C:	Absolute permeability
Option D:	Length
Q3.	Determine the current through the resistor R3 shown in the figure using KCL 
Option A:	25mA
Option B:	10mA
Option C:	20mA
Option D:	35mA
Q4.	A circuit is given in the figure below. The Thevenin equivalent as viewed from terminals x and x' is _____

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Option A: 8 V and 6 Ω

Option B: 5 V and 6 Ω

Option C: 5 V and 32 Ω

Option D: 8 V and 32 Ω

Q5.

Which is this function network,

- (a) RL network
- (b) RC network
- (c) LC network
- (d) RLC network

Option A:

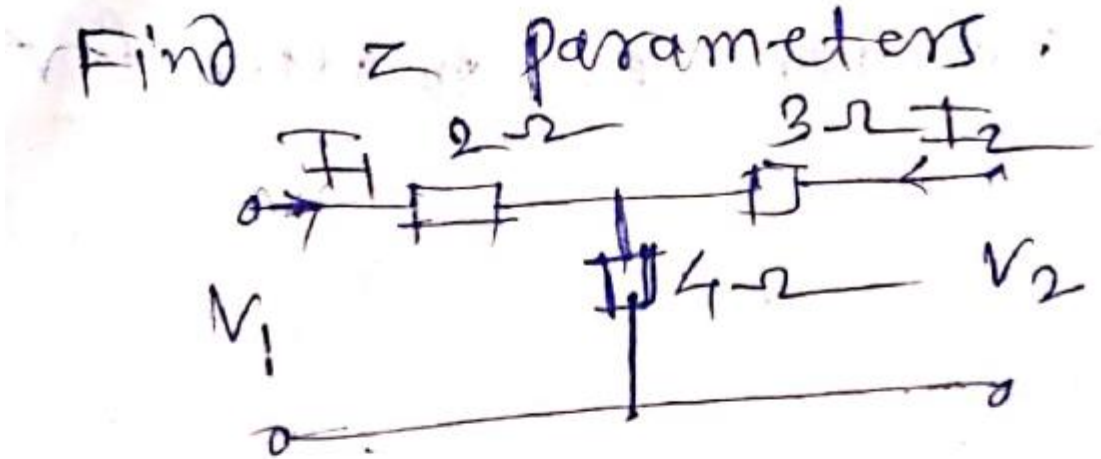
Option B:

Option C:

Option D:

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Q6.



(a) $\begin{bmatrix} 6 & 4 \\ 4 & 7 \end{bmatrix}$

(b) $\begin{bmatrix} 4 & 6 \\ 6 & 7 \end{bmatrix}$

(c) $\begin{bmatrix} 4 & 6 \\ 4 & 6 \end{bmatrix}$

(d) $\begin{bmatrix} 6 & 4 \\ 7 & 4 \end{bmatrix}$

Option A:

Option B:

Option C:

Option D:

Q7.

In the following circuit, when $R = 0 \Omega$, the current I_R equals to 10 A. The maximum power will be?

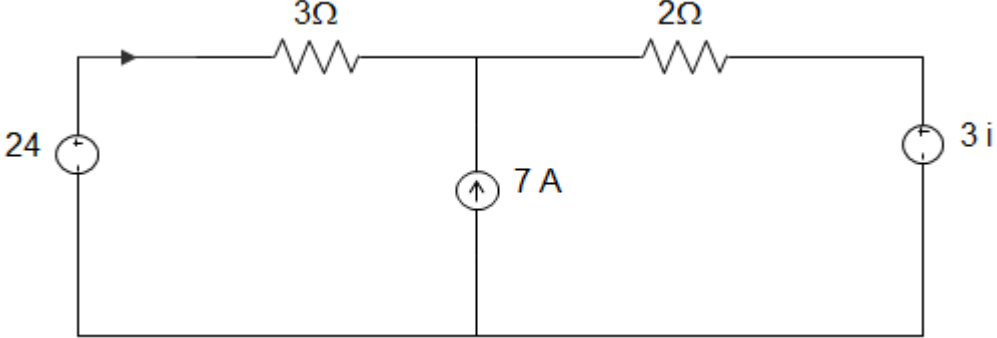
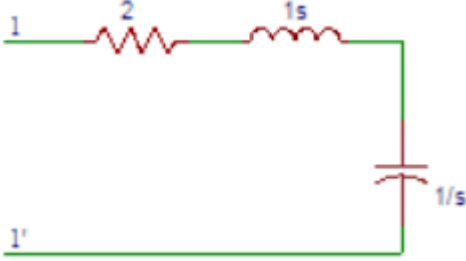
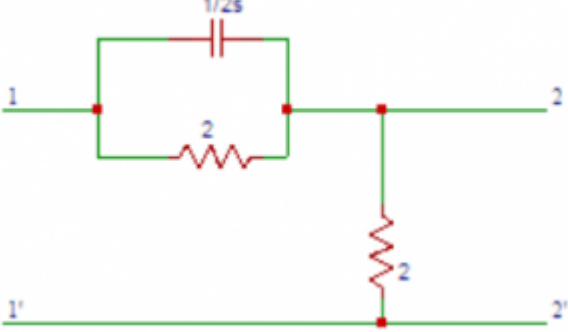
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Option A:	50 W
Option B:	100 W
Option C:	200 W
Option D:	400 W
Q8.	<p>. Find the voltage (V) at node 3 in the figure shown below.</p>
Option A:	18
Option B:	20
Option C:	22
Option D:	24
Q9.	<p>The circuit shown in figure has a load equivalent to _____</p>

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Option A:	$\frac{4}{3}\Omega$
Option B:	$\frac{8}{3}\Omega$
Option C:	4Ω
Option D:	3Ω
Q10.	<p>The Norton equivalent impedance Z between the nodes P and Q in the following circuit is _____</p>
Option A:	1
Option B:	$1 + s + 1/s$
Option C:	$2 + s + 1/s$
Option D:	$3 + s + 1/s$
Q11.	<p>In the figure given below, the value of Resistance R by Superposition Theorem is _____</p>
Option A:	10
Option B:	20
Option C:	30
Option D:	40
Q12.	The current I in the circuit given below is _____

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Option A:	$\frac{1}{4}$
Option B:	$\frac{5}{4}$
Option C:	$\frac{3}{4}$
Option D:	$\frac{1}{2}$
Q13.	The unit step is not defined at $t = ?$
Option A:	0
Option B:	1
Option C:	2
Option D:	3
Q14.	For the network shown in the figure, find the driving point impedance.
	
Option A:	$(s^2 - 2s + 1)/s$
Option B:	$(s^2 + 2s + 1)/s$
Option C:	$(s^2 - 2s - 1)/s$
Option D:	$(s^2 + 2s - 1)/s$
Q15.	Obtain the transfer function $G_{21}(s)$ in the circuit shown below.
	
Option A:	$(8s + 2)/(8s + 1)$
Option B:	$(8s + 2)/(8s + 2)$
Option C:	$(8s + 2)/(8s + 3)$
Option D:	$(8s + 2)/(8s + 4)$

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Q16.	Which of the following expression is true in case of open circuit parameters?
Option A:	$V_2 = Z_{21}I_1 + Z_{22} I_2$
Option B:	$V_2 = Z_{21}I_1 + Z_{22} I_2$
Option C:	$V_1 = Z_{21}I_2 + Z_{22} I_2$
Option D:	$V_1 = Z_{21}I_1 + Z_{22} I_2$
Q17.	Find the Z – parameter Z_{11} in the circuit shown below.
Option A:	1
Option B:	1.5
Option C:	2
Option D:	2.5
Q18.	Which of the following expression is true in case of short circuit parameters?
Option A:	$I_2 = Y_{21}I_1 + Y_{22} I_2$
Option B:	$V_2 = Y_{21}I_1 + Y_{22} V_2$
Option C:	$I_2 = Y_{21}V_1 + Y_{22} V_2$
Option D:	$I_2 = Y_{21}V_1 + Y_{22} I_2$
Q19.	.In the circuit shown below, find the transmission parameter A.
Option A:	6/5
Option B:	5/6
Option C:	3/4
Option D:	4/3
Q20.	The hybrid parameter h_{21} is called?
Option A:	open circuit output admittance
Option B:	open circuit reverse voltage gain
Option C:	short circuit forward current gain
Option D:	short circuit input impedance
Q21.	For the given information $Z_{11} = 3, Z_{12} = 1, Z_{21} = 2, Z_{22} = 1$. Find the value of Y_{11} .
Option A:	1

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Option B:	-1
Option C:	2
Option D:	-2
Q22.	The relation between Z_{22} and Y parameters is?
Option A:	$Z_{22} = (-Y_{11})/\Delta y$
Option B:	$Z_{22} = Y_{21}/\Delta y$
Option C:	$Z_{22} = (-Y_{21})/\Delta y$
Option D:	$Z_{22} = Y_{11}/\Delta y$
Q23.	The roots of the odd and even parts of a Hurwitz polynomial P (s) lie on _____
Option A:	right half of s plane
Option B:	left half of s-plane
Option C:	on $j\omega$ axis
Option D:	on σ axis
Q24.	If the ratio of the polynomial P (s) and its derivative gives a continued fraction expansion with _____ coefficients, then the polynomial P (s) is Hurwitz.
Option A:	all negative
Option B:	all positive
Option C:	positive or negative
Option D:	positive or negative

Q25.

Which is this function.

$$Z(s) = \frac{(s+1)(s+3)}{s(s+2)}$$

(a) LC function

(b) RL function

(c) RC function

(d) RLC function.

Option A:

Option B:

Option C:

Option D: