

Program: BE –All Branches

Curriculum Scheme: Choice based R-2019-20 “C” Scheme

Examination: First Year Semester I

Course Code: FEC 105 and Course Name: BEE

SAMPLE QUESTION PAPER

Time: 1 hour

Max. Marks: 50

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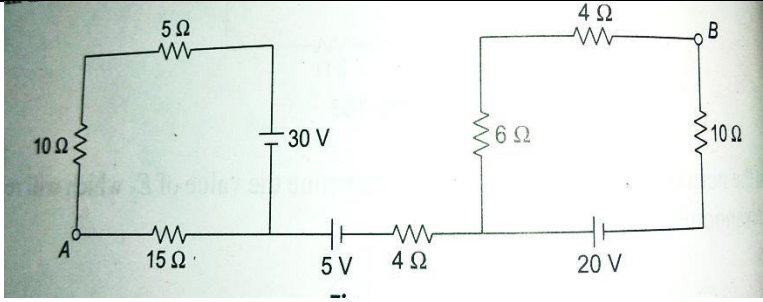
Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	A sinusoidal alternating voltage is represented as $v(t) = 12\sin(120\pi t)$ V. The time taken to reach 9.6V for the first time is
Option A:	2.46 sec
Option B:	3 msec
Option C:	2.46 msec
Option D:	5 msec
Q2.	If the maximum current of a half-wave rectified wave is I_{max} , then its rms value is given as
Option A:	$0.637 I_{max}$
Option B:	$0.707 I_{max}$
Option C:	I_{max}/π
Option D:	$0.5 I_{max}$
Q3.	Consider two sinusoidal waves : $A = \sin(\omega t + 30^\circ)$ and $B = \cos(\omega t - 60^\circ)$ The phase relationship between the two waves is
Option A:	Wave A and Wave B are in same phase
Option B:	Wave A lead Wave B by 30° .
Option C:	Wave B lag Wave A by 60°
Option D:	Wave A lead Wave B by 90°
Q4.	A 7Ω resistor is connected in series with a pure inductor of L henry. When this series combination is connected across 230-V, 50 Hz supply, the resulting current is 18.84 A. Find Inductive reactance of pure inductor.
Option A:	12Ω
Option B:	10Ω
Option C:	12.8Ω
Option D:	15Ω
Q5	A series R-L-C circuit with $R=10\Omega$, $L=0.014$ H, $C=100 \mu\text{F}$.The resonance frequency and Quality factor of the circuit are

Option A:	810rad/sec and 2 respectively.
Option B:	845.15rad/sec and 1.183 respectively.
Option C:	900rad/sec and 1.831 respectively.
Option D:	845.15rad/sec and 1.813 respectively
Q6.	A parallel circuit consists of a $2.5\mu\text{F}$ capacitor and a coil whose resistance and Inductance are 15Ω and 260mH respectively. The dynamic impedance and power factor of the circuit at resonance are
Option A:	$6.93\text{K}\Omega$ and unity respectively
Option B:	$10\text{K}\Omega$ and 0.5 leading
Option C:	$6.93\text{K}\Omega$ and 0.5 lagging respectively
Option D:	$10\text{K}\Omega$ and unity respectively
Q7.	A Capacitor of $1\mu\text{F}$ is connected across an AC supply of 5000Hz .find the Capacitive reactance
Option A:	31.847 ohms
Option B:	318.47 ohms
Option C:	0.314 ohms
Option D:	3.14 ohms
Q8.	Power factor of a series circuit at resonance will be
Option A:	0.8
Option B:	Unity
Option C:	Zero
Option D:	0.707
Q9.	Percentage Efficiency of an Ideal transformer
Option A:	80
Option B:	90
Option C:	100
Option D:	0
Q10.	Find turns ratio of a $440 / 220\text{V}$ single phase transformer
Option A:	2
Option B:	0.5
Option C:	1
Option D:	0
Q11.	A 1KVA single phase transformer working at unity power factor has a full load copper loss of 80W and iron loss of 60W .The half full load efficiency at unity power factor will be
Option A:	100
Option B:	88.5
Option C:	90
Option D:	86.21

Q12.	A single-phase transformer (1100/550V) has a primary resistance of 1 ohm. If transferred to secondary ,what is the equivalent resistance value
Option A:	2 Ω
Option B:	4 Ω
Option C:	1 Ω
Option D:	0 Ω
Q13.	Wattmeter reading in OC Test conducted in a transformer with rated voltage applied will be
Option A:	Copper loss
Option B:	Total loss
Option C:	Iron or Core loss
Option D:	Losses at full load
Q14.	Line and Phase Voltage relationship in a star connected 3-phase circuit
Option A:	Equal
Option B:	Line Voltage is 1.732 times phase voltage
Option C:	Line Voltage is 2 times phase voltage
Option D:	Line Voltage is 1.5 times phase voltage
Q15.	Line and Phase Current relationship in a Delta connected 3-phase circuit
Option A:	Line Current is 1.732 times phase Current
Option B:	Equal
Option C:	Line Current is 2 times phase Current
Option D:	Line Current is 1.5 times phase Current
Q16.	A 415 v,50 Hz ,3-phase supply is connected to a balanced star connected circuit, Impedance per phase is 20 \angle 30,Find Active or real power
Option A:	1KW
Option B:	10KW
Option C:	4.305 KW
Option D:	7.46KW
Q17.	A 415 v,50 Hz ,3-phase supply is connected to a balanced Delta connected circuit, Impedance per phase is 20 \angle 30,Find Reactive power
Option A:	25,832KVAR
Option B:	14.14KVAR
Option C:	10KVAR
Option D:	1KVAR

Q18.



For the given network find the voltage between points A & B.

Option A:

10V

Option B:

20V

Option C:

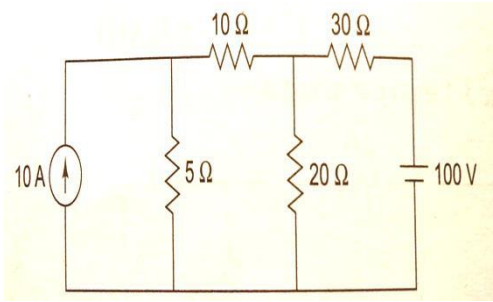
30V

Option D:

25V

Q19.

Using superposition theorem find the current flowing through 10Ω resistance.



Option A:

0.37A

Option B:

37A

Option C:

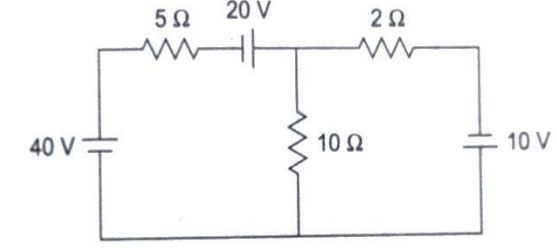
3.7A

Option D:

3.7mA

Q20.

Using Thevenin's theorem find the value of current flowing through the 2Ω resistor.



Option A:

0.937A

Option B:

9.37A

Option C:

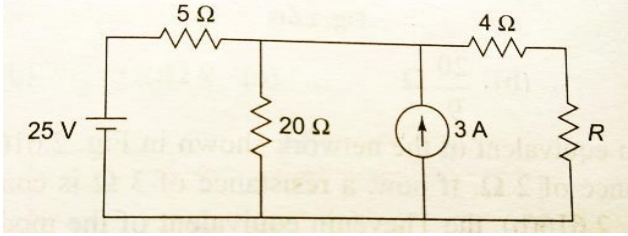
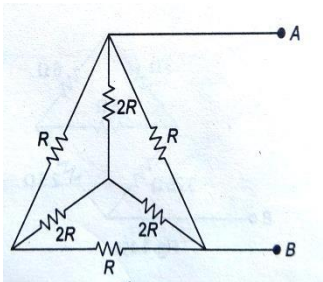
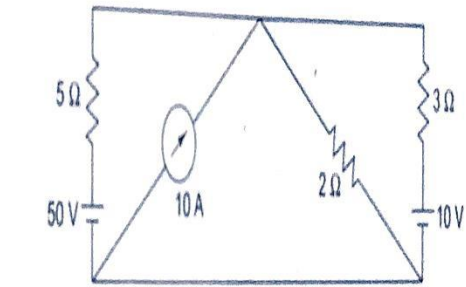
3.97A

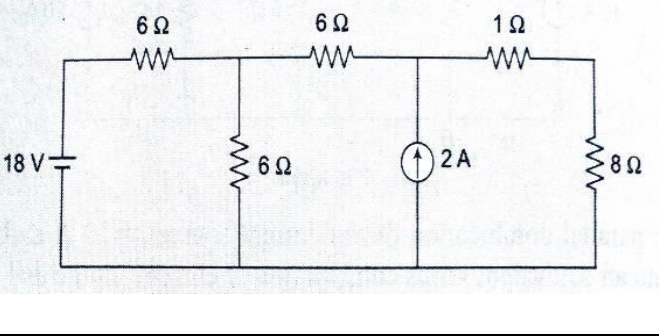
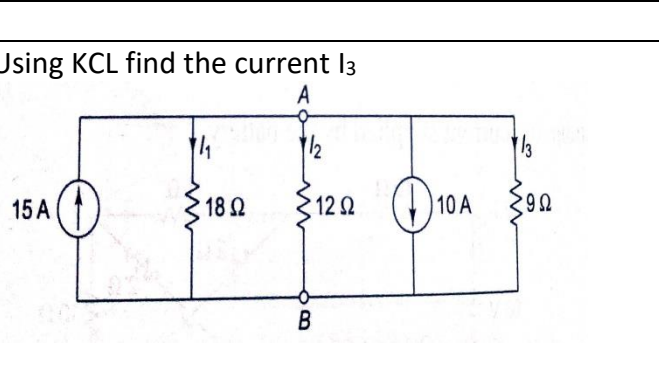
Option D:

0.397A

Q21.

Find the value of R_L for maximum power transfer.

	
Option A:	1Ω
Option B:	2Ω
Option C:	8Ω
Option D:	12Ω
Q22.	<p>Using Star delta transformation find the resistance between A and B</p> 
Option A:	$4R/7 \Omega$
Option B:	$2R/7 \Omega$
Option C:	3 Ω
Option D:	4 Ω
Q23.	<p>Using source transformation find the power delivered by the 50V source.</p> 
Option A:	2.74W
Option B:	274W
Option C:	27.4W
Option D:	20W
Q24.	<p>Using source transformation find the value of current flowing through the 8Ω resistor.</p>

	
Option A:	1A
Option B:	2.5A
Option C:	1.5A
Option D:	.15A
Q25.	<p>Using KCL find the current I_3</p> 
Option A:	2.22A
Option B:	22.2A
Option C:	0.22A
Option D:	2.5A