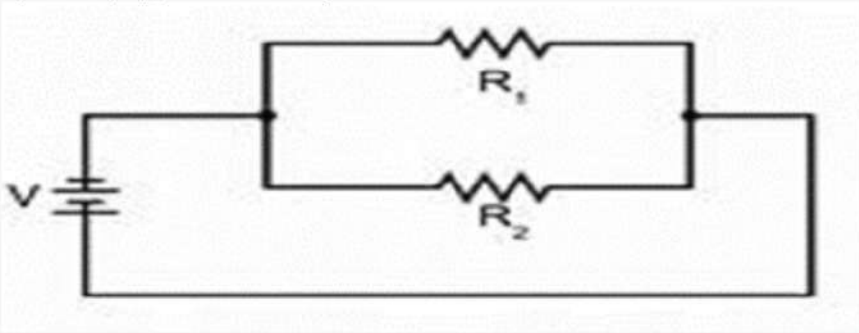
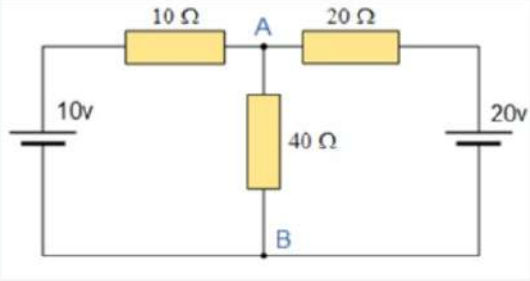
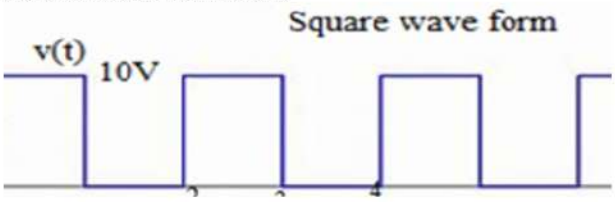
B.Tech - Even Sem : Semester in Exam-I

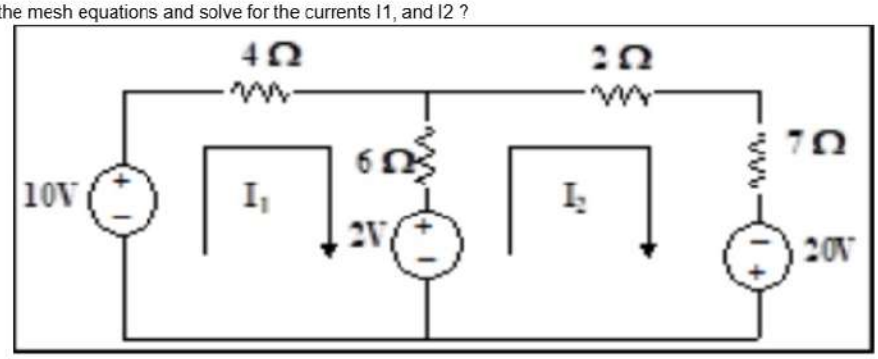
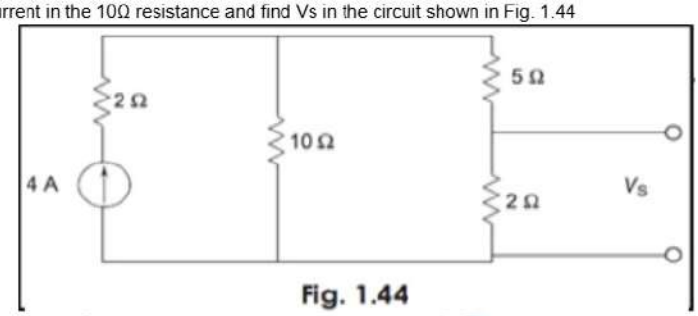
Academic Year:2023-2024

23EC1203 - BASIC ELECTRICAL AND ELECTRONIC CIRCUITS

Set No: 1

Time:				**Max.Marks: 50**			
S.NO	Answer All Questions	Choice	Options	Marks	CO	CO BTL	COI BTL
1.	ANSWER ALL QUESTIONS [6 x 2 = 12M]			12Marks	CO2	2	2
1.A.	Define KCL, KVL with formulae ?			2Marks	CO1	2	2
1.B.	How many Branches,loops, nodes exists in the given circuit? 			2Marks	CO1	2	2
1.C.	Distinguish ideal and practical voltage sources in all aspects ?			2Marks	CO1	2	2
1.D.	Mention the role of reactance in any electrical circuit ?			2Marks	CO2	2	2
1.E.	Define form factor, peak factor ?			2Marks	CO2	2	2
1.F.	Represent RMS, average Value in a sinusoidal wave form ?			2Marks	CO2	2	2

2.	ANSWER ALL QUESTIONS [4 x 4 = 16M]			16Marks	CO2	2	2
2.A.	Find the Thevenin's voltage across 40 ohm resistance in the given circuit ? 			4Marks	CO1	2	2
2.B.	Calculate the total capacitance in a circuit consists of C1=5μF, C2=10 μFconnected in parallel and series ?			4Marks	CO1	2	2
2.C.	Calculate i) Frequency ii) RMS VALUE III) AVERAGE VALUE IV) FORM FACTOR in a sinusoidal signal of voltage 40 Sin(628)t			4Marks	CO2	2	2
2.D.	Calculate the average and RMS value of the square wave. 			4Marks	CO2	2	2

3.	ANSWER ALL QUESTIONS [5 + 6 = 11M]	choice Q-4		11Marks	CO1	2	2
3.A.	Write the mesh equations and solve for the currents I1, and I2 ? 			5Marks	CO1	2	2
3.B.	Explain about the V-I characteristics for passive elements, How to measure the energy stored across inductor and capacitor elements ?			6Marks	CO1	2	2
4.	ANSWER ALL QUESTIONS [5 + 6 = 11M]			11Marks	CO1	2	2
4.A.	If four resistors R1=R2=20kΩ and R3=R4=10kΩ, is connected in series with a power supply of 20V , then calculate circuit current and individual voltages across each resistor ?			5Marks	CO1	2	2
4.B.	Determine the current in the 10Ω resistance and find Vs in the circuit shown in Fig. 1.44  Fig. 1.44			6Marks	CO1	2	2

5.	ANSWER ALL QUESTIONS [5 + 6 = 11M]	choice Q-6		11Marks	CO2	2	2
5.A.	Explain the concept of impedance in Series RL and RC circuit.			5Marks	CO2	2	2
5.B.	Draw the phasor representation of an alternating quantity represent phase lag and phase lead with waveforms			6Marks	CO2	2	2
6.	ANSWER ALL QUESTIONS [5 + 6 = 11M]			11Marks	CO2	2	2
6.A.	Write the polar form of the voltage given by V= Sin(100∏t+∏/6) V and obtain its rectangular form.			5Marks	CO2	2	2
6.B.	Define bandwidth, resonant frequency, Qfactor in a series RLC circuit.			6Marks	CO2	2	2