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PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations - MARCH 2026

Date: 11-03- 2026

Time: 09:30am - 11:00am

School: SOCSE & SOE	Program: B.TECH-CSE & B.TECH -ISE	
Course Code: EEE1200	Course Name: Basics of Electrical and Electronics Engineering	
Semester: II	Max Marks: 50	Weightage: 25%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	20	30	-	-	-

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

5Q x 2M=10M

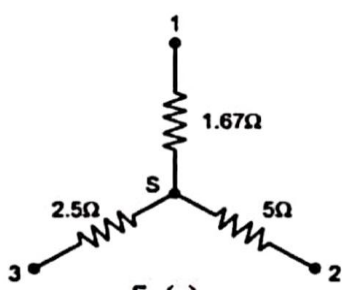
1	List out the advantages of AC supply over DC supply	2 Marks	L1	CO2
2	An AC voltage waveform has an RMS value of 115.6 V, an average value of 100 V, and a maximum value of 200 V. Determine the form factor and the peak factor of the waveform	2 Marks	L2	CO2
3	A waveform completes one full cycle in 20 milliseconds. Calculate the frequency of this waveform	2 Marks	L2	CO2
4	A supply voltage has a mean value of 150 V. Determine its maximum value and its rms value	2 Marks	L2	CO2
5	A capacitor has a reactance of 40 ohm, when operated on a 50 Hz supply. Determine the value of its capacitance.	2 Marks	L2	CO2

Part B

Answer the Questions.

Total Marks 40M

6.	a.	Given four 1ohm resistors, state how they must be connected to give an overall resistance of (a) 0.25ohm (b) 1ohm (c)1.33ohm (d) 2.5ohm, all four resistors being connected in each case.	5 Marks	L2	CO1
	b.	A 12 V battery is connected in a circuit having three series-connected resistors having resistances of 4Ω , 9Ω and 11Ω . Determine the current flowing through, and the p.d. across the 9Ω resistor. Find also the power dissipated in the 11Ω resistor.	5 Marks	L2	CO1
Or					
7.	a.	Two resistors, of resistance 3Ω and 6Ω , are connected in parallel across a battery having a voltage of 12 V. Determine (a) the total circuit resistance and (b) the current flowing in the 3Ω resistor.	5 Marks	L2	CO1
	b.	A 15Ω resistor is connected in series with 3 parallel resistors of 2Ω , 5Ω and 10Ω . If the current through the entire circuit is 8A, find current flowing through each resistor. (5M)	5 Marks	L2	CO1

8.	a.	Apply star to delta conversion technique, calculate R_{12} , R_{23} , and R_{31} ?	5 Marks	L3	CO1
			5 Marks	L3	CO1
b.	Three resistors, each of 3Ω , are connected in a delta (Δ) configuration. Convert this delta network into an equivalent star (Y) configuration and determine the resistance values of each resistor in the star network (5M)	5 Marks	L3	CO1	

Or

9.	a.	Apply Kirchhoff's voltage and current law for a network with appropriate equations to get the voltage and current.	7 Marks	L3	CO1
	b.	If similar value of resistances are connected in series and parallel, which will give more effective resistance? Justify your Answer.	3Marks	L3	CO1

10.	a.	A pure inductance of 1.273 mH is connected in series with a pure resistance of 30 ohm. If the frequency of the sinusoidal supply is 5 kHz and the potential drop. across the 30 ohm resistor is 6 V, determine the value of the supply voltage and the voltage across the 1.273 mH inductance. Draw the phasor diagram.	10 Marks	L3	CO2
Or					
11.	a.	In a three-phase industrial lighting system configured in a star connection, illustrate how the phase and line voltages relate, and describe how the corresponding currents and power are determined for reliable operation.	6 Marks	L3	CO2
	b.	A 60 Hz, voltage of 115V (rms) is impressed on a 100 Ω resistance. Determine i) Maximum voltage, ii) Maximum current, and iii) <i>Angular velocity</i> (ω).	4 Marks	L3	CO2

12.	a.	When a pure inductive load is connected to the AC supply, compute the voltage, current, and power in the circuit, and support your analysis with the necessary diagram and waveforms to justify its practical behavior.	10 Marks	L3	CO2
Or					
13.	a.	A coil takes a current of 2 A from a 12 V d.c. supply. When connected to a 240 V, 50 Hz supply the current is 20 A. Calculate the resistance, impedance, inductive reactance and inductance of the coil.	10 Marks	L3	CO2