H.T.No: | | | | | | | | | | | Course Code: **241EE001**

ADITYA UNIVERSITY

B.Tech – I Semester End Examinations Supplementary – APR 2025

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE, ME, ECE, CSE & Min.E)

Time: 3 hours **Max. Marks: 50**

Answer ONE question from each unit
All Questions Carry Equal Marks
All parts of the questions must be answered at one place only

UNIT-I

1	a	Define ohms law and write it's limitations	L1	CO1	[5M]
	b	Calculate the resistance between the terminals P and Q of the network shown in Fig.1.	L3	CO1	[5M]

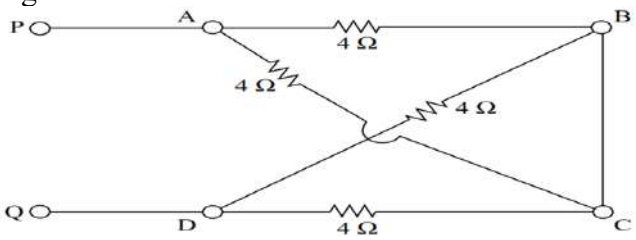

Fig.1

(OR)

2	a	Derive the equation for Rms value, average value, peak factor and form factor for sinusoidal waveform	L3	CO1	[5M]
	b	Three resistances 100 ohm, 200 ohm and 300 ohm are connected in series to a 250 volt supply. Determine the current in the circuit and the power dissipated in each resistor.	L3	CO1	[5M]

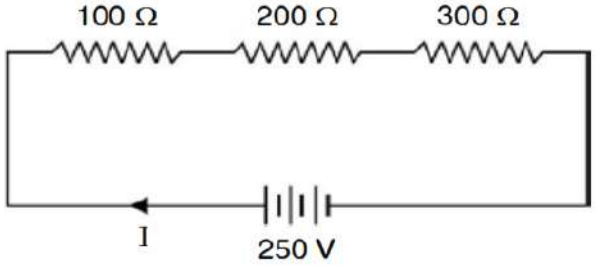

Fig.2

UNIT-II

3	a	Explain the principle of operation of DC generator.	L2	CO2	[5M]
	b	Explain the working of PMMC instrument with neat diagram	L2	CO2	[5M]

(OR)

4	a	Explain the operation of transformer with neat diagram .	L2	CO2	[5M]
	b	Explain the working of Megger with neat diagram.	L2	CO2	[5M]

(P.T.O)

UNIT-III

5	a	Explain the schematic diagram of a Hydroelectric Power Plant.	L2	CO3	[5M]
	b	Explain the process of earthing and describe its different types.	L2	CO3	[5M]

(OR)

6	a	Describe the working principle and layout of a solar power generation system.	L2	CO3	[5M]
	b	A consumer uses a 10kW geezer, a 6kW electric furnace and five 100W bulbs for 15 hours. How many units (kWh) of electrical energy have been used and what would be the electricity bill?	L3	CO3	[5M]

UNIT-IV

7	a	Explain CB configuration of BJT	L2	CO4	[5M]
	b	Draw and explain the input and output characteristics of a common-emitter configuration.	L3	CO4	[5M]

(OR)

8	a	Describe the operation of PNP transistor.	L2	CO4	[5M]
	b	Explain the operation of Zener diode as a voltage regulator.	L2	CO4	[5M]

UNIT-V

9	a	Explain the working of a full-wave rectifier with the help of a circuit diagram and waveforms.	L2	CO5	[5M]
	b	Explain Full adder circuit with the help of truth tables	L2	CO5	[5M]

(OR)

10	a	What is Excess-3 code? Encode the decimal numbers 0–9 using Excess-3 code.	L3	CO5	[5M]
	b	Draw and explain the block diagram of a DC power supply.	L2	CO5	[5M]

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