Code No: **RT41029**

Set No. 1

IV B.Tech I Semester Supplementary Examinations, July/Aug - 2021 ELECTRICAL DISTRIBUTION SYSTEMS (Electrical and Electronics Engineering)

Time: 3 hours

lectrical and Electronics Engineering)

Max. Marks: 70

Question paper consists of Part-A and Part-B Answer ALL sub questions from Part-A Answer any THREE questions from Part-B *****

PART-A (22 Marks)

1.	a)	Write the effects of variations of diversity factor on the distribution system.	[4]
	b)	What are the various types of distribution feeders?	[4]
	c)	What is the difference between the uniformly distributed loading and non	
		uniformly distributed loading?	[4]
	d)	What is the need to calculate the fault current in the distribution system?	[4]
	e)	What are the advantages of capacitor compensation?	[3]
	f)	Discuss the need of voltage control in the distribution system.	[3]
		$\underline{\mathbf{PART}} - \underline{\mathbf{B}} (3x16 = 48 \text{ Marks})$	
2.	a)	Write short notes on coincidence factor and the contribution factors with examples?	[8]

- b) A generating station supplies 4 feeders with maximum demands of 16MW, 10MW, 12MW and 6MW. The overall maximum demand on the station is 20MW and the annual load factor is 45%. Find the diversity factor and the number of units generated annually.
- 3. a) Discuss the design considerations of loop type distribution feeder. [8]
 b) Draw and explain the single line diagram of radial type primary feeder and mention the factors that affect the selection of primary feeder. [8]
- 4. a) Compare a 1 phase 2 wire uni grounded common neutral system with the three phase system with respect to the power loss and voltage drop? [8]
 - b) A 3 phase distribution line has resistance and reactance per phase of 15 ohms and 21 ohms respectively. If the sending end voltage is 33kV and the regulation of the line is not to exceed 10%, find the maximum power in kW which can be transmitted over the line. Find the kVAR supplied by the line when delivering the maximum power.
- 5. a) Discuss the types of faults that may occur in the distribution systems. [8]
 b) Explain in detail the operation of line sectionalizers and the auto reclosers? [8]

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Set No. 1

6. a) What are the advantages that can be derived by best capacitor location? [8]
b) A 3phase 50Hz, 3000V motor develops 600h.p, the power factor being 0.75 lagging and the efficiency is 0.91. A bank of capacitors is connected in delta across the supply terminals and the power factor is raised to 0.95 lagging. Each of the capacitance units is built of 5 similar 600V capacitors. Find the capacitance of each capacitor. [8]

7.	a)	Explain the operation of AVB for voltage control.	[8]
	b)	Derive the expressions for series capacitor compensation from the phaso	r [8]

diagram.

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