



R20 Regulation

Subject code: 3E8BA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VIII Semester Supplementary Examinations, November 2025

ELECTRICAL DISTRIBUTION SYSTEMS (EEE)

Maximum Marks: 70

Date: 27.11.2025

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	Bloom Tx
1	List out the types of loads present in distribution system.	2M	CO1	BT1
2	Define the term Feeder.	2M	CO1	BT1
3	What is the necessity of Optimal Location of substation? What are the methods for the optimal location of substation.	2M	CO2	BT2
4	How do you analyze the distribution feeder cost?	2M	CO2	BT2
5	Difference between the fuse to fuse coordination and fuse to recloser coordination.	2M	CO3	BT2
6	Describe the operating principle of Circuit breakers.	2M	CO3	BT1
7	What are the advantages of Shunt compensation?	2M	CO4	BT1
8	Discuss the importance of power factor correction.	2M	CO4	BT1
9	How an AVR can control voltage?	2M	CO5	BT2
10	List out various types of equipment used for voltage control.	2M	CO5	BT1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
11	Discuss the relationship between load factor and loss factor for different load cases.	10M	CO1	BT3
OR				
12	a) Compare the radial and loop type primary feeders. b) Explain the basic design practice of secondary distribution system.	5M 5M	CO1	BT3
13	Explain how do you analyze a substation service area with 'n' primary feeders.	10M	CO2	BT4
OR				
14	Derive the relationship for power loss and voltage drop for substation service area with 'n' primary feeders.	10M	CO2	BT4
15	Discuss the procedure for fault current calculation in following faults. a) Three phase Ground fault b) Phase to phase ground fault	5M 5M	CO3	BT3
OR				
16	Discuss in detail how the co-ordination of various protective devices	10M	CO3	BT3

	helps in improving system performance.			
17	a) How do you justify economically the connection of capacitors for the improvement of power factor? b) Explain the effect of shunt compensation on distribution system.	5M 5M	CO4	BT3
	OR			
18	A 3-phase transformer rated 6000 KVA and has an over load capability of 125 of the rating. If the connected load is 12100 KVA with a 0.8 pf(lag), determine the following: i. The KVAR rating of shunt capacitor bank required to decrease the KVA load of the transformer to its capability level ii. The p.f. of the corrected level iii. The KVAR rating of the shunt capacitor bank required to correct the load p.f to unity	10M	CO4	BT4
19	With the help of a phasor diagram. Show how a series capacitor boosts the voltage. What are the drawbacks of this method?	10M	CO5	BT4
	OR			
20	Briefly explain the line drop compensation on voltage control.	10M	CO5	BT2