R20 Regulation *Subject code: 3P4BE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, June 2026

POWER SYSTEMS-I

(EEE)

Maximum Marks: 70 Date: 17.06.2026 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.
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	BTL
1	What is a steam power station?	2M	1	L1
2	Write a short note on solar energy.	2M	1	L1
3	What is Tariff?	2M	2	L1
4	Define connected load and maximum demand.	2M	2	L1
5	Explain the capacitance grading?	2M	3	L1
6	Give the examples of insulating materials	2M	3	L1
7	What is a corona?	2M	4	L1
8	What are factors which effect corona?	2M	4	L1
9	What is AC distribution system?	2M	5	L1
10	Classification of DC distribution system?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain power generation using steam power station with neat diagram.	10M	1	L2
	OR			
12	Draw a neat schematic diagram of a hydro-electric plant and explain the functions of various components.	10M	1	L2
13	a) Discuss the effect of load factor and diversity on the cost of electrical energy generated. b) A 100MW power station delivers 100MW for 2 hours, 50MW for 6 hours and is shut down for the rest of the day. It is also shut down for maintenances for 45days each year. Calculate its annual load factor.	5M 5M	2	L2
	OR			
14	What are the different types of tariff and write the objectives of tariff.	10M	2	L2
15	What is a strain insulator and where it is used? Give a sketch to show its location?	10M	3	L2
	OR			
16	Derive the expression for insulation resistance of a cable.	10M	3	L2

17	Derive the expression for capacitance of single phase overhead transmission line.	10M	4	L2
	OR			
18	Describe various methods for reducing corona effect in an overhead transmission line.	10M	4	L2
19	Explain 3-phase 4 wire system AC distribution system.	10M	5	L2
	OR			
20	Describe briefly the different types of D.C distribution.	10M	5	L2