



R18 Regulation

Subject code: 2P6BA

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, November 2025

## POWER SYSTEMS-II

(EEE)

Maximum Marks: 70

Date: 19.11.2025

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.
  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 are bundled conductors?	2M	1	L1
2	ACSR conductor having 7 steel strands surrounded by 25 aluminum conductor will be specified as?	2M	1	L1
3	What is the GMD & GMR?	2M	2	L1
4	What is GMR write the relationship with radius?	2M	2	L1
5	What surge impedance?	2M	3	L1
6	Define visual critical voltage?	2M	3	L1
7	Give applications of sag template	2M	4	L1
8	Write the methods to reducing the corona effect?	2M	4	L1
9	Write the types of the line supporters used in electrical systems?	2M	5	L1
10	What is stringing chart?	2M	5	L1

### Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Derive the expression for inductance of a three phase double circuit line.	10M	1	L2
OR				
12	Derive the expression for the capacitance of a conductor in a double circuit hexagonal spaced three phase system?	10M	1	L2
13	Derive the A, B, C and D constants of long transmission lines using Rigorous solution.	10M	2	L2
OR				
14	Explain and derive expression for surge impedance and surge impedance loading?	10M	2	L2
15	Derive the mathematical expression for Reflection and Refraction Coefficients – Termination of lines with Open Circuited Line?	10M	3	L2
OR				
16	Derive the mathematical expression for Reflection and Refraction Coefficients – Termination of lines with Short Circuited Line?	10M	3	L2
17	Derive the expression for sag and tension when the supports are at unequal heights	10M	4	L2

	OR			
18	Derive the sag expression for a transmission line with the effect of ice covering and wind pressure.	10M	4	L2
19	Explain and derive the terms critical disruptive voltage, visual critical voltage and corona loss?	10M	5	L2
	OR			
20	Derive the sag expression for a transmission line at equal level supports	10M	5	L2