R18 Regulation *Subject code: 2P6BA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, July 2024

POWER SYSTEMS-II

(EEE)

Maximum Marks: 70 Date:19.07.2024 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)		CO	Bloom Tx
1	What is the need for transposition of transmission lines?	1	L1
2	Give brief about GMR and GMD and their significance.	1	L1
3	Write the reflection co-efficiency for voltage wave for the load?	2	L1
4	What is charging current and shunt compensation?	2	L1
5	Difference between lumped and distributed parameters?	3	L1
6	What is difference between nominal T & nominal π model of a transmission line.	3	L1
7	Give applications of sag template	4	L1
8	Write the methods to reducing the corona effect?	4	L1
9	What are Commonly used conductor materials. used in overhead lines?	5	L1
10	What are the factors affecting the corona?	5	L1
	Part-B		
Answer All the following questions. (5X10M=50Marks)			
11	In a 3-phase transmission line the conductors are placed at the corners of an equilateral triangle of each side 2.5cm. If the radius of each conductor is 0.8cm find the inductance per phase per kilometer. [10]	1	L2
	OR		
12	Derive the capacitance of a 3-phase unsymmetrical overhead transmission line with transposed. [10]	1	L1
13	Derive the A, B, C and D constants for Nominal-π model of medium transmission line. [10]	2	
	OR		
14	A Single phase transmission line delivers 2MW of power at the receiving end at a voltage of 33kV and 0.9 p.f. lagging.the total resistance of the line is 10 ohm and the total inductive reactance is 18 ohm. Determine: [10] i)% age voltage regulation ii)Sending end power factor iii)Transmission efficiency	2	L3

15	Derive the expressions for regulation and efficiency of a long transmission line. Draw required circuit and phasor diagram. [10]	3	L2
	OR		
16	Explain the Surge impedance and surge impedance loading of long transmission line. [10]	3	L4
17	Explain the travelling waves of long transmission line. [10]	4	L3
	OR		
18	Explain and derive the terms critical disruptive voltage, visual critical voltage and corona loss. [10]	4	L3
19	Derive the sag expression for a transmission line with the effect of ice covering and wind pressure. [10]	5	L2
	OR		
20	Derive the expression of voltage distribution string efficiency of insulator. [10]	5	L3