



Regulation R18

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code:2P6BA

B.Tech VI Semester Supplementary Examinations, June/July 2023
POWER SYSTEMS-II

(EEE)

Maximum Marks: 70

Date:22.06.2023 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)

- 1 What is the length and voltage levels of the short Transmission line
- 2 Shunt capacitance is usually neglected in which type of transmission lines, why?
- 3 Write ABCD constants for medium transmission line?
- 4 What is GMR write the relationship with radius ?
- 5 What surge impedance ?
- 6 Define visual critical voltage?
- 7 Give applications of sag template
- 8 Write the methods to reducing the corona effect?
- 9 What are Commonly used conductor materials. used in overhead lines?
- 10 What are the factors affecting the corona?

Part-B

Answer any five of the following questions.

(5X10M=50Marks)

- 11 Derive the expression for inductance of a three phase double circuit line. 10
- OR
- 12 Derive the expression for the capacitance of a conductor in a double circuit hexagonal spaced three phase system? 10
 - 13 Derive the A, B, C and D constants of long transmission lines using Rigorous solution. 10
- OR
- 14 Explain and derive expression for surge impedance and surge impedance loading? 10
 - 15 Derive the mathematical expression for Reflection and Refraction Coefficients – Termination of lines with Open Circuited Line? 10
- OR
- 16 Derive the mathematical expression for Reflection and Refraction Coefficients – Termination of lines with Short Circuited Line? 10
 - 17 Derive the expression for sag and tension when the supports are at unequal heights 10

OR

- 18 Derive the sag expression for a transmission line with the effect of ice covering and wind pressure. 10
- 19 Explain and derive the terms critical disruptive voltage, visual critical voltage and corona loss? 10

OR

- 20 The towers of height 30 m and 90 m respectively support a transmission line conductor at water crossing. The horizontal distance between the towers is 500 m. If the tension in the conductor is 1600 kg, find the minimum clearance of the conductor and water and clearance mid-way between the supports. Weight of conductor is 1.5 kg/m. Bases of the towers can be considered to be at water level. 10