Hall Ticket Number :										

R-15

Code: 5G252

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2023

Transmission of Electrical Power

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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UNIT–I

1. Develop the expression for the Inductance per unit length of an overhead line from the basics of magnetic fields. 14M

OR

2. a) Derive the capacitance of a 1-φ two wire line 8M

   b) The horizontally placed conductors of a 1- φ line operating at 50Hz are having outside diameter of 1.6cm and the spacing between centers of the conductors is 6m. The permittivity of free space is 8.854×10^{-12} F/m. Determine the capacitance to ground per km of each line. 6M

UNIT–II

3. a) Evaluate ABCD constants for Short Transmission line 5M

   b) Explain in detail about the short and medium lines 9M

OR

4. Discuss in detail the nominal-T representation with neat circuit diagram and phasor diagram. Derive also its performance specifications. 14M

UNIT–III

5. a) What is surge impedance? Define Surge Impedance loading? What is the relation of SIL with Ferranti effect? 8M

   b) What is the difference between lumped parameters and distributed parameters? 6M

OR

6. Discuss in detail the different mathematical methods for obtaining ABCD constants of long line. 14M

UNIT–IV

7. a) What are the factors affecting corona and explain in detail. 8M

   b) Define the following
   i) Reflection ii) Refraction iii) Attenuation 6M

OR

8. With neat sketches describe the travelling of the wave for open and short circuited ends at different time instants. 14M

UNIT–V

9. a) Develop the mathematical relations of insulation resistance and capacitance of single core cable. 6M

   b) Find the Voltage distribution of 5 disc insulator string and prove that voltage distribution is not uniform. 8M

OR

10. Define String Efficiency? Discuss the different methods of improving string efficiency? 14M

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