B.Tech. (EE) 4th Semester (G Scheme) Examination, July–2022
TRANSMISSION AND DISTRIBUTION
Paper– PCC-EE-210-G

Time allowed : 3 hours] *[Maximum marks : 75*

Note : ***Question no. 1 is compulsory.*** *Attempt any one question from each section.*

1. (a) Why glass insulators cannot be used above 50Kv?

(b) What is the value of GMR of a conductor having radius r?

(c) List the advantages of using bundled conductor.

(d) What is skin effect and on what factors does it depend?

(e) Explain String efficiency.

(f) Define Surge impedance loading. 6×2.5=15

Section-A

2. Draw and explain structure of modern power system with typical voltage levels. 15

3. Compare different distribution systems with respect to the volume of conductor material used. 15

Section-B

4. (a) Derive the expression for flux linkages and inductance inside and outside the conductor producing flux. 10

   (b) Discuss Proximity effect. 5

5. Classify transmission line on the basis of their length. Explain their characteristics as well. 15

Section-C

6. In a 33 kV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self capacitance of each insulator, find the distribution of voltage over 3 insulators and sting efficiency. 15

7. (a) Obtain an expression for the sag of a transmission line supported by towers of same height at the ends. 10

   (b) Discuss the role of equalizer ring. 5

Section-D

8. What is Corona in power system and What are the factors affecting corona loss? Discuss them briefly. What are the methods of reducing corona loss? Discuss the advantages and disadvantages of corona. 15

9. (a) What is the principle of HVDC system operation? Discuss the technical and economical advantages of dc system over ac system. 10

   (b) Describe Grading of cables. 5