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E14

B. Tech. EXAMINATION, 2020

(Fifth Semester)

(B. Scheme) (Re-appear Only)

EE, EEE

EE305B

POWER SYSTEMS-I

Time : 2½ *Hour*s] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Draw the layout of the 66-kV outdoor substation. Name various components and equipment installed. Describe in brief.

2. What is purpose of interconnector in a d.c. ring main distributor ? Derive an expression for the voltage drop for a uniform loaded distributor fed at one end.

3. Deduce an approximate expression for calculating sag in overhead line with conductors suspended between level supports. How the effects of wind and ice can be taken into account in sag calculation ?

4. Derive and draw the π-equivalent model of long transmission line.

5. What are the limitations of solid type cables ? How are these overcome in pressure cable ?

6. The potential across the 6 units of the string is equalized by using graded insulators. If the capacitance of the top insulator is 8C and that of pin to earth is C. Calculate the capacitance of the other units.

If instead of graded insulators, a guard ring is used to equalize the potential, calculate the capacitance of each link to conductor.

7. What types of DC links are used in present day Power Systems ? Discuss the application of each of these links.

8. What do you understand by corona and radio interference in high voltage transmission systems ?