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EX–505

B. E. (Fifth Semester) EXAMINATION, Dec., 2011

(Electrical & Electronics Engg. Branch)

POWER SYSTEM – I

(EX – 505)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. All questions carry equal marks.

Unit – I

1. (a) Explain briefly site selection and layout for a thermal power plant.

   (b) What are major components of thermal power station ? Give the names and their function.

Or

2. (a) Write a short note on load duration curve and its utility.

   (b) Explain load dispatch.

Unit – II

3. (a) Explain the meaning of "Self GMD and Mutual GMD".

   (b) Derive the expression for capacitance per phase of a three-phase transmission line with symmetrical spacing.

Or

4. (a) Discuss the technical comparison for the cable and overhead transmission lines. Explain classification of cables.

   (b) Derive expression for insulation and capacitance of single core cable.

Unit – III

5. (a) Explain how transmission lines are classified into short, medium and long lines and explain their characteristics.

   (b) What do you understand by medium transmission lines ? How are capacitance effects taken into the account in such lines ?

Or

6. (a) Derive expression for ABCD constants of a long transmission line.

   (b) A three-phase transmission line with 132 kV at the receiving end has the following transmission constants :
   $A = D = \cdot 98 \angle 3°$, $B = 110 \angle 75°$, $C = 0 \cdot 0005 \angle 88°$ S.
   If the load at receiving end is 50 MVA, ·8 p. f. (lag), determine voltage, current and p. f. at the sending end.

Unit – IV

7. (a) Write a short note on "Types of line supports".

   (b) Write a short note on "Sag template".

Or

8. (a) Define string efficiency with reference to suspension insulator assembly. Explain how this efficiency can be improved.

   (b) Explain various types of insulators.

Unit – V

9. (a) What are the different types of bus bar arrangement Explain any *one* of them.

   (b) Explain switching and compensating substations.

Or

10. (a) Give a single line diagram of outdoor substation and label the equipment used.

    (b) Write a short note on Kelvin law of Economy.

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