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Question Paper Code : 71773

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Fourth Semester

Electrical and Electronics Engineering

EE 6402 — TRANSMISSION AND DISTRIBUTION

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the transmission voltages that are followed in Tamil Nadu.

2. What is ring main system?

3. State skin effect in transmission lines. Mention its effect on the resistance of the line.

4. State different types of overhead conductors.

5. What is Ferranti effect?

6. Write down the significance of SIL on transmission line.

7. Specify the different types of insulators.

8. What are the two different methods of grading of cables?

9. Enlist any two factors that affect sag in the transmission line.

10. Write down the types of grounding.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the structure of electric power system in detail.

Or

(b) (i) Compare the overhead and underground distribution system. (8)

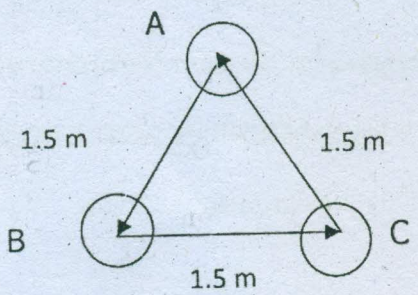
(ii) State the advantages of Interconnected system. (5)

12. (a) Explain the factors affecting corona loss and methods of reducing corona loss.

Or

(b) (i) Explain the advantages of bundled conductors when used for overhead lines. (4)

(ii) Determine the inductance of a 3 phase line operating at 50 Hz and the conductors are arranged as shown below. The conductor diameter is 0.7 cm. (9)



13. (a) What are the different methods available for Voltage Control and explain any one method.

Or

(b) (i) Explain the meaning of performance of lines. (5)

(ii) A single phase 50 Hz generator Supplies an inductive load of 6 MW at 0.8 pf lagging by means of an overhead line 15 km long. The line resistance and inductance are 0.02 ohm/km and 0.85 mH/km. The voltage at the receiving end is 11 kV. Determine the sending end voltage and voltage regulation. (8)

14. (a) What are the different types of testing of Insulators? Explain any one method.

Or

(b) Write short notes on :

(i) Properties of insulation material Used for cable. (5)

(ii) The Capacitance per kilometer of a 3 phase belted core cable is 0.2 micro farad/km between two cores with the third core connected to sheath. Calculate the kVA. The supply voltage is 6.6 kV and 30 km long. (8)

15. (a) Describe the different types of Substation layouts and list few advantages of GIS.

Or

(b) Explain the key points to be considered for tower spotting. Also list the basic types of tower based on circuits used.

PART C — (1 × 15 = 15 marks)

16. (a) A 400 V, 3 phase 4 wire service mains Supplies a star connected load. The resistance of each line is 0.1 ohm and that of the neutral 0.2 ohm. The load impedances are $Z_R = (6 + j9)$, $Z_y = 8$ ohms and $Z_B = (6 - j8)$.

Calculate the voltage across each load impedance and current in the neutral. Phase sequence RYB.

Or

(b) Explain your understanding about transmission of Power and distribution of power.

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