Reg. No. | | | | | | | | | | | | |

Question Paper Code : 41231

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fifth Semester

Electrical and Electronics Engineering

080280040 – TRANSMISSION AND DISTRIBUTION

(Regulation 2008)

Time : Three hours Maximum : 100 marks

(Codes/Tables/Charts to be permitted, if any, may be indicated)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define load curve.
2. Give the functions of spillways in hydro electric plant.
3. What is transposition? Why is transmission lines transposed?
4. What do you mean by proximity effect?
5. Draw the phasor representation of lagging power factor load.
6. What are the factors limiting power transfer capability?
7. How does electrical breakdown occur in an insulator?
8. List any two requirements of cables used in underground system.
9. Classify distribution system.
10. List any two advantages of FHVAC transmission.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the sources of electrical energy in detail. (10)

(ii) Briefly discuss about cost of electrical energy. (6)

Or

(b) (i) Draw the schematic diagram of Nuclear power station and explain its operation. (10)

(ii) Write a short note on solar energy. (6)

12. (a) Derive an expression for inductance of bundled conductor. (16)

Or

(b) Briefly explain the interference with neighbouring communication circuits. (16)

13. (a) Determine the efficiency and % regulation of a 3ϕ, 100 km, 50 Hz transmission line delivering 20 MW at a p.f of 0.8 lagging, 66 kV to a balanced load. The conductors are of copper each having resistance $0.1\Omega/km$, 1.5 cm outside diameter, spaced equilaterally 2 m between centers. Neglect leakage reactance and use nominal π method. (16)

Or

(b) Discuss the shunt compensation and determine the MVAR of the shunt reactor for medium and long transmission lines. (16)

14. (a) (i) With neat diagram explain the strain and stay insulators. (6)

(ii) Give brief discussion about grading the insulators and determine its value of capacitance. (10)

Or

(b) (i) Obtain an expression for electrostatic stress in a single core cable and determine the value of r. (12)

(ii) Write a short note on XLPE cable. (4)

15. (a) With the help of necessary diagrams explain the radial and ring-main distribution systems. (16)

Or

(b) (i) Draw a schematic layout of a SVC and explain. (8)

(ii) Discuss about environmental aspects in EHV lines. (8)
