Reg. No. : 8 1 3 0 7 1 0 5 3 1 6

J 3216

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Fourth Semester

Electrical and Electronics Engineering

EE 1252 — TRANSMISSION AND DISTRIBUTION

(Common to B.E. (Part–Time) Third Semester Regulation 2005)

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is an electric power supply system?

2. Name any two FACTS controller devices.

3. On what factors does the skin effect depend.

4. What is bundling of conductors?

5. What is Ferrenti effect?

6. What is meant by 'Corona'? Mention their effects.

7. Mention any four insulating materials used in cables.

8. Name the methods for improving string efficiency.

9. What are the advantages of ring main distributor?

10. What is interconnected system?

PART B — (5 × 16 = 80 marks)

11. (a) Compare the HVDC transmission with EHVAC transmission in the following respects.

(i) Economics of transmission

(ii) Reliability

(iii) Technical Performance. (16)

Or

(b) Draw and explain the structure of Electrical power system. (16)

12. (a) Calculate the loop inductance per km of a single phase line comprising of 2 parallel conductors 1 m apart and 1 cm in diameter, when the material of conductor is

(i) Copper

(ii) Steel of relative permeability 50. (16)

Or

(b) Derive the equation for capacitance of a 3 phase unsymmetrically spaced overhead lines. (16)

13. (a) A 15 km long 3 phase overhead line delivers 5 MW at 11 kV at 0.8 lagging p.f line loss is 12% of power delivered. Line Inductance is 1.1 mH per km per phase. Find the sending end Voltage and Regulation.

Or

(b) (i) Explain surge impedance loading with respect to an overhead transmission line. (6)

(ii) Explain the End condenser method for Medium Transmission lines. (10)

14. (a) Explain the following types of grading of cables.

(i) Capacitance grading. (8)

(ii) Intersheath grading. (8)

Or

(b) Define 'string efficiency' and calculate its value for a string of three insulator units if the capacitance of each unit to earth and line be 20% and 5% of the self capacitance of the unit.

15. (a) Explain the following substation bus schemes.

(i) Double bus with double breaker. (8)

(ii) Main and transfer bus. (8)

Or

(b) Explain the different types of grounding systems.
