Roll No.								

B.E (FULL TIME) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2012

ELECTRICAL AND ELECTRONICS ENGINEERING

FOURTH SEMESTER

EE 9251 TRANSMISSION AND DISTRIBUTION

(REGULATIONS -2008)

Time : 3 hr Max. Marks : 100

Answer ALL Questions

Part- A (10x 2=20 Marks)

1. Explain the need for high voltage transmission in a electric power system?
2. Define interconnection of grids and mention the advantages of interconnection.
3. Differentiate stranded and bundled conductors.
4. Explain the need for a complete transposition of transmission lines.
5. Compare static VAR generator and rotating VAR generators for voltage control.
6. Define Ferranti effect.
7. Derive the insulation resistance of a single core cable.
8. Mention the desirable characteristics of high voltage insulators.
9. Draw and explain the use of a stringing chart.
10. Define equivalent span.

Part- B (5x16=80 Marks)

11. Draw and explain the structure of a HVDC transmission system. (8)
Discuss the advantages and disadvantages of a HVDC system. (8)

12.a Derive for capacitance of a three phase line with unsymmetrical spacing.

(OR)

12.b Derive for inductance of a three phase line with unsymmetrical spacing.

13.a. When a transmission line can be modeled as a short line ? (2)
Draw the equivalent circuit of a short line and derive for voltage regulation. (6)
Draw the phasor diagrams for lagging current and zero voltage regulation condition.(8)

(OR)

13.b. Derive the power flow equations through a transmission line and comment on factors influencing real and reactive power flow.

14.a. Explain the need for grading in a cable and explain any two types of grading. (8+8)

(OR)

14.b. Derive the potential distribution over a string of suspension insulators and explain any one method of grading.

15.a. A transmission line conductor having a diameter of 19.5mm weighs 850kg/km. The span is 275m. The wind pressure is 39kg/m^2 of projected area with ice coating of 13mm. The ultimate strength of the conductor is 8000kg. Calculate the maximum sag if the factor of safety is 2 and ice weighs 910kg/m^3.

(OR)

15.b. Explain the need for neutral grounding and discuss the solid, resistance and reactance grounding method with suitable phasor diagrams. (4 x4)