Printed pages: 3	TEE503
(Following paper code and roll No. to be filled in your answer book)	
Paper code: 2057	Roll No.

B Tech
V SEM. THEORY EXAMINATION, 2012-13
Elements of Power System

Time : 3 Hours Total Marks: 100

Note : Attempt all questions.

Q1. Attempt any two parts of the following (2x10)

(a) What is single line diagram (SLD)? Explain with the help of SLD of a typical power system. Explain its components in brief.

(b) What are the different types of supply systems? Compare between 3 phase 3 wire and 3 phase 4 wire systems.

(c) Explain skin effect and proximity effect. How do these affect transmission line performance?

Q2. Attempt any two parts of the following (2x10)

(a) Derive the expression for inductance of double circuit transmission line. Assume the line to be transposed.

(b) Obtain the mathematical model of the medium transmission line using nominal T method. What is the major limitation of this model?

(c) What is surge impedance? Obtain its expression in terms of ABCD parameters. What is the role of surge impedance loading in transmission line design?

Q3. Attempt any two parts of the following (2x10)

(a) What is corona loss? Explain the various factors affecting corona loss.

(b) Explain the following terms in brief.

(i) Critical and visual disruptive voltage

(ii) Radio Interference due to corona

(c) What do you mean by string efficiency of suspension insulators? Explain in brief, the various methods to improve string efficiency.

Q4. Attempt any two parts of the following (2x10)

(a) What is sag? Explain various factors affecting sag of a transmission line.

(b) What do you mean by grading of a cable? Explain both the cases of capacitance grading of the cable. Also give its demerit.

(c) Explain the following terms in brief.

(i) Stringing chart

(ii) Insulation Resistance of a cable

(iii) Dielectric loss

Q5. Attempt any two parts of the following (2x10)

(a) What are the types of grounding? Explain in detail the resonant grounding clearly showing the various currents and voltage in the circuit and phasor diagram.

(b) Write a short note on design considerations of EHV transmission line with the help of following points

 aktuonline.com

(i) Choice of voltage level and no. of circuits

(ii) Conductor configuration and grounding

(iii) Insulation

(c) Explain the necessity and problems associated with the Extra High Voltage / Ultra High Voltage transmission lines.