(Please write your Exam Roll No.) Exam Roll No. .....

END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] MAY- JUNE 2016

Paper Code: ETEE-206 **Subject: Power System-I (Batch: 2013 onwards)**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.No1 which is compulsory. Select one question from each unit.

Q1 (a) Explain capacitance grading for improving voltage distribution across units of string insulator.
(b) Define Corona Loss.
(c) What is the significance of using α (Alpha) operator in studying component synthesis?
(d) Define per unit system and why it is used?
(e) Explain different type of buses used in load flow analysis **(5x5=25)**

UNIT-I

Q2 (a) Draw and explain each component in single line diagram of power system. **(6)**
(b) A transmission line has a span of 275 mtrs between level supports. The conductor has a diameter of 19.53 mm, weighs of 0.844 kgf/m and has an ultimate breaking strength of 7950 kgf. Each conductor has a radial covering of ice 9.53 mm thick and is subjected to a horizontal wind pressure of 40 kgf/m^2 of the ice covered projected area. If the factor of safety is 2, calculate the deflected sag and the vertical component of the sag. One cubic meter of ice weighs 913.5kgf. **(6.5)**

Q3 (a) In a six-unit suspensions insulator string, the capacitance between each link pin and earth is 0.1 of the self capacitance of each unit. Determine the voltage across the lowest unit as percentage of the total voltage and also the string efficiency. **(6.5)**
(b) Name methods of equalizing potential over string of insulator and explain method of static shielding. **(6)**

UNIT-II

Q4 (a) Explain in brief electromagnetic effect considering interference between power and communication lines. **(6)**
(b) Derive a relation for average inductance per phase of unsymmetrical three phase line. **(6.5)**

Q5 (a) Explain analysis of Travelling wave with use of bewley diagram. **(6.5)**
(b) For nomial T model of a medium transmission line deduce A, B, C, D parameters also explain its phasor diagram. **(6)**

UNIT-III

Q6 (a) Describe capacitance grading in cables to equalize the stress in the dielectric of cable. **(6.5)**
(b What do you understand by insulation resistance? **(6)**

ETEE-206 P.T.O.

Q7 (a) With a help of diagram and waveforms explain effect of sudden short circuit at the armature terminals of a three phase generator. **(7.5)**

(b) Explain generator reactors and feeder reactors. **(5)**

UNIT-IV

Q8 (a) Describe Guass-Sidedel method using Y-bus for power flow analysis. **(9.5)**

(b) Derive static load flow equations (SLFE). **(3)**

Q9 (a) Draw flow chart for load flow solution using Newton-Raphson method in polar coordinates. **(8.5)**

(b) Explain Fast Decoupled Load Flow (FDLF) method for analysis of load flow. **(4)**

****

ETEE-206

P2/2