

2056
B.E. (Electrical and Electronics Engineering)
Fourth Semester
PC-EE-402: Power System - I

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Compare conductor cost on the basis of DC and AC supply.
- b) Define string efficiency and its importance.
- c) Advantage of bundled conductors.
- d) What are the advantages of underground cables?
- e) A travelling wave suffers reflection when it reaches discontinuity. (5x2)

UNIT - I

- II. a) Explain capacitive grading of cables.
b) Derive the capacitance of a three core cable. (2x5)
- III. a) Explain factors that affect sag. A string has three discs. The capacitance of pin to earth is 20% of the capacitance of disc. Find the ratio of voltage across the discs and string efficiency.
b) What do you mean by grading of cables Explain methods of grading? (2x5)
- IV. a) Discuss the behaviour of a travelling wave when it reaches the end of (i) open circuited (ii) short circuited (iii) terminated by inductance
b) What are the advantages of per unit system? (2x5)

UNIT - II

- V. Derive the expression for calculating internal and external internal flux linkages of a conductor carrying current. (10)

P.T.O.

(2)

- VI. Find the A,B,C,D parameters , sending end voltage, power angle of a 3-phase, 200 km, 50 Hz transmission line with series impedance of $(11 + j100)$ ohm per phase and a shunt admittance of 1.3×10^{-3} ohm per phase. The line delivers 200MW at unity p.f. and at 275kV. (10)

- VII. Draw phasor diagram of a nominal T circuit of a transmission line. Derive expression for sending end voltage and current. (10)

x-x-x