

[Time: 3 Hours]

[Marks:80]

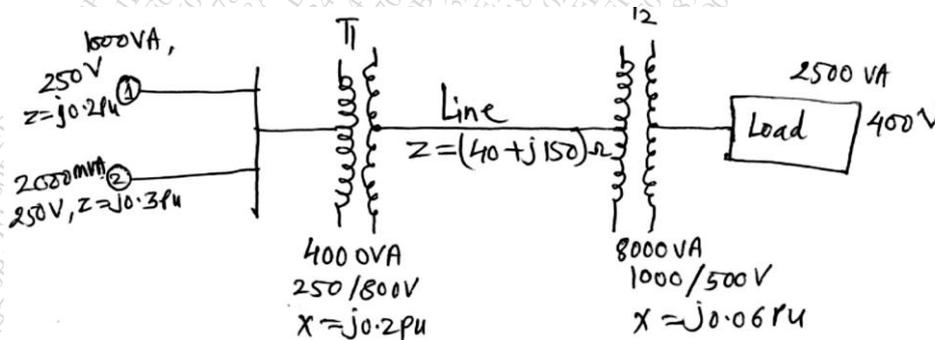
Please check whether you have got the right question paper.

- N.B: 1. Questions No.1 is compulsory.
 2. Solve three questions from remaining questions.
 3. All questions carry equal marks.
 4. Assume suitable data if required.

- Q.1** a) What is the difference between overhead & underground system. **20**
 b) Explain skin effect & proximity effect.
 c) Explain transposition of power line
 d) Explain step & touch potential.

- Q.2** a) What is string efficiency & Derive expression for string efficiency? **20**
 b) A 3- phase double circuit line has vertical configuration as radius of each conductor is 1.1 cm. the horizontal distance h is 5 m & Vertical distance D is 3m. Find the inductance per phase per km of line.

- Q.3** a) Derive an expression from inductance of 1-phase, 2- wire line with solid conductor .write assumption. **20**
 b) For a simple power system shown in below , draw the per unit impedance diagram on a common base of 5000 VA & 250 V.



- Q.4** a) Derive an expression for capacitance per phase per km of a 1-phase line taking into account effect of ground. **20**
 b) Find A, B, C, D parameters of a 3-phase, 80km, 50 hz transmission line with series impedance of $0.15 + j0.78$ ohm/ km & a shunt capacitance of $j 5 \times 10^{-6}$ mho/km .use nominal T configuration.

- Q.5** a) Prove that per unit impedance of transformer can be made some referred to both winding by selecting proper voltage base in either side. **20**
 b) Explain tuned power line.

Q.6

- a) Explain the measurement of earth resistance & soil resistivity.
- b) Explain the different method of neutral grounding.

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