

Duration – 3 Hours

Total Marks - 80

- N.B.:-** (1) Question No.1 is compulsory.
 (2) **Attempt** any **Three** questions out of remaining **five** questions.
 (3) Assume suitable data if necessary and justify the same.

- Q 1. Answer any **FOUR** from **FIVE** following questions.
- A) Explain typical AC system with single line diagram. **05**
 - B) Explain Skin effect and proximity effect. **05**
 - C) Define PU system. Write advantages and disadvantages of PU system. **05**
 - D) Explain suspension insulator. Write advantages over pin type insulator **05**
 - E) Explain transposition of power system **05**
- Q 2 a) What is string efficiency. Describe different method to improve string efficiency. **10**
- Q 2 b) Derive the expression for inductance of single phase two wire line. **10**
- Q 3 a) A 3- phase double circuit line has vertical configuration as radius of each conductor is 1.1cm. The horizontal distance h is 5m and the vertical distance D is 3m. Find the inductance/ph/km of the line. **10**
- Q 3 b) Explain effect on earth on single phase transmission line capacitance. **10**
- Q 4 a) Find ABCD constant of medium transmission line represented by nominal π model. Also draw phasor diagram **10**
- Q 4 b) If weight of conductor is 0.35 kg/m. maximum allowable strength is 800kg. Span length is 160m and safety factor is 2. Find the minimum point of sag if supports are at 70m and 65m **10**
- Q 5 a) A string insulator has 5 units each rated for 11 kv. Find the maximum line voltage on which it can be operated safely. The mutual capacitance of unit is 10 times the capacitance between pin to earth **10**
- Q 5 b) Find the approximate expression for sag in overhead lines, when **10**
- I) Support are at equal level
 - II) Support are at unequal level
- Q6) Short note on
- a) Explain general construction of underground cable. **07**
 - b) Explain tuned power line **06**
 - c) Explain measurement of earth resistance and soil resistivity **07**