Code: EE5T5

III B.Tech - I Semester – Regular/Supplementary Examinations October 2019

TRANSMISSION AND DISTRIBUTION
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

11 x 2 = 22 M

1.
    a) What is Proximity Effect?

    b) What is the use of transposition?

    c) Write A,B,C & D constants for Medium Transmission lines?

    d) What is meant by surge Impedance Loading?

    e) List the types of cables in underground cables.

    f) List the factors effecting on corona.

    g) What is sag in overhadlines?

    h) What is the refracted voltage equation for the line terminated through a resistance?

    i) What is meant by attenuation of travelling waves?

    j) What are the disadvantages of radial distribution system?

   k) List the advantages of DC Distribution over AC Distribution system.

PART – B

Answer any *THREE* questions.   All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain the concept of Self GMD & Mutual GMD.   8 M

b) A three phase, 50Hz, 66kV overhead line conductors are placed in a horizontal plane as shown in Fig. The conductor diameter is 1.25cm. If the line length is 100km,Calculate (i) capacitance per phase (ii) Charging curent per phase, assuming complete transposition of the line.   8 M
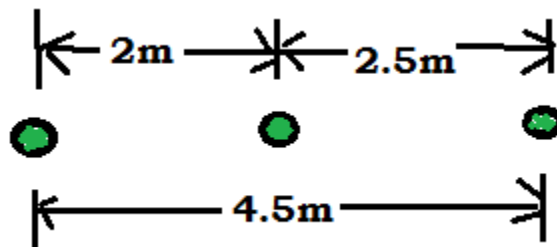
3. a) An overhead 3-phase transmission line delivers 5000kw at 22kV at 0.8 p.f lagging.The resistance and reactance of each condcutor is 4Ω and 6Ω respectively. Determine: (i) sending end voltage (ii) percentage regulation (iii) transmission efficiency.   8 M

b) Find the expression for dielectric stresses in a single-core cable.   8 M

4. a) Explain the construction and operation of suspension type insulators.   8 M

b) In a 33kV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self-capacitance of each insulator, Find
(i) the distribution of voltages over 3 insulators and
(ii) string efficiency.   8 M

5. a) Expalin the travelling wave phenomenon over transmission line using long transmission line.   8 M

b) A surge of 15kV magnitude travels along a cable towards its junction with an overhead line. The inductance and capacitance of the cable and overhead line are respectively 0.3mH, 0.4μF and 1.5mH, 0.012 μF per km. Find the volatge rise at the junction due to the surge.   8 M

6. a) Explain AC distibutors with concentrated loads for the power factors referred to receiving - end voltage.   8 M

b) A two wire dc distributor 500m long is fed at one end, the cross sectional area of each conductor $15.34cm^2$ and resistivity of copper is $1.7\mu\Omega$ cm the distributor supplies 200A at a distance of 300m feeding point and 100A at the terminal. Calculate the voltage at the feeding end, if the voltage at the terminals is to be 230V.   8 M