22419

23124

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) State the classification of transmission lines depending on length of transmission lines.

b) State the effect of inductance or performance of transmission lines.

c) State any four factors on which skin effect depends.

d) State any four features of wireless power transmission.

e) List any four components of distribution system.

f) Define feeder and distributor.

g) State any two properties of insulating material used for overhead insulator.

Marks

2. Attempt any THREE of the following: **12**

a) Draw single line diagram of AC electric transmission and distribution system.

b) Explain proximity effect and state its two disadvantages.

c) Explain the phenomenon of Corona. State how Corona effect can be reduced?

d) Distinguish between overhead system and underground system on the following parameters :–

i) Charging current

ii) Overload capacity

iii) Power factor

iv) Appearance.

3. Attempt any THREE of the following: **12**

a) Compare primary transmission and secondary transmission line on the basis of :–

i) Portion of transmission line

ii) Height of tower

iii) Loading point

iv) Installation of PLCC.

b) Draw and explain HVDC Bi-Polar transmission system.

c) Give any four points to be considered while designing distributor.

d) Discuss any two methods of improving string efficiency.

4. Attempt any THREE of the following: **12**

a) Explain with neat sketch construction method of 33kV distribution system.

b) Draw equivalent circuit diagram and phasor diagram of medium transmission line, using 'T' method.

c) Give any eight important reasons for adoption of EHVAC transmission.

d) Draw a neat diagram of radial distribution system and state any two advantages.

Marks

e) A string of three unit suspension insulator observed to have voltage distribution on top disc 9kV, middle disc 12kV. Calculate:

i) Line voltage

ii) String efficiency.

5. Attempt any TWO of the following: **12**

a) Draw the vector diagram for a short transmission line connected to lagging power factor load. Derive equations for efficiency and regulation.

b) Explain any four features of flexible AC transmission line. State types of FACTS controller.

c) A single phase AC distributor of 600 mtr length has total impedance of (0.02 + j 0.04) Ohm and is fed from one end at 220V. If it is loaded as shown in Figure No. 1. Calculate the voltage drop and voltage at far end.

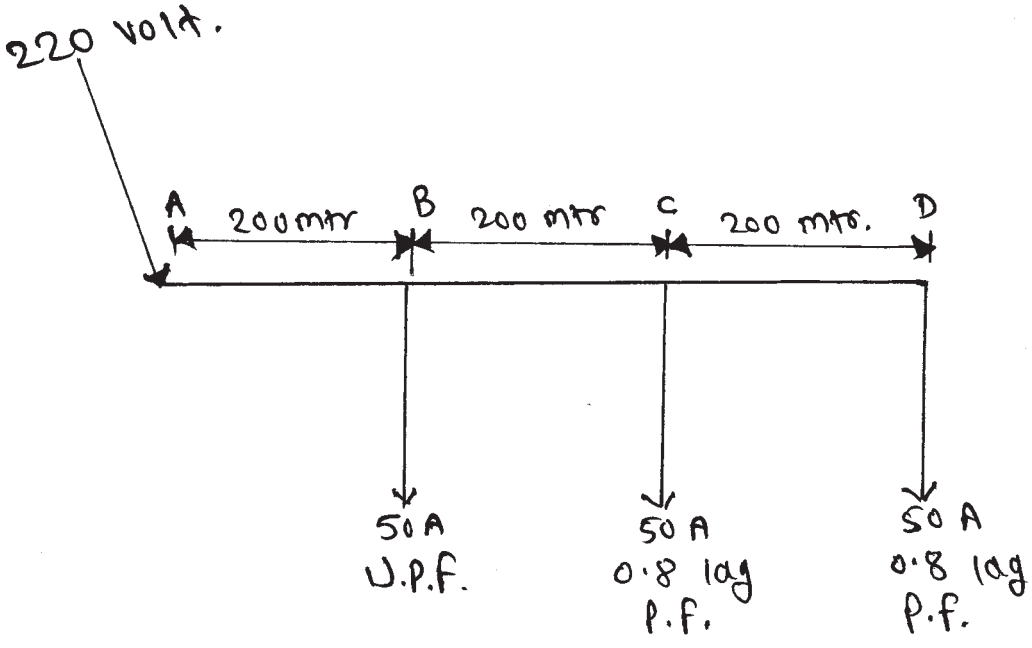

Fig. No. 1

Marks

6. Attempt any TWO of the following: **12**

a) Distinguish between nominal T and nominal π method of analysis of medium transmission line. (Any six points)

b) i) State the different types of distribution schemes.

ii) Draw a neat labelled single line diagram for 11 kV/400V distribution substation.

c) State different methods of laying of underground cables. Explain any one method in detail.