Scheme -I

Sample Question Paper

Program Name	: Electrical Engineering Program Group	
Program Code	: EE/EP/EU	**22419**
Semester	: Fourth	
Course Title	: Electric Power Transmission and Distribution	
Marks	: 70	**Time: 3 Hrs.**

Instructions:

(1) All questions are compulsory.

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

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.   **10 Marks**

    a) State the classification of different transmission system on the basis of voltage levels.

    b) Define: Transmission Efficiency.

    c) State skin effect of transmission line where this effect occurs.

    d) State any four applications of HVDC transmission system.

    e) Define: Feeder and Distributor.

    f) State the different types of distribution schemes.

    g) State the different transmission line components in the system.

Q.2) Attempt any THREE of the following.   **12 Marks**

    a) Compare underground transmission system with over-head transmission system.

    b) Explain the transposition of conductor and state its necessity.

    c) Write the limitations of EHVAC with respect to distribution system.

    d) Explain the different methods of improving string efficiency.

Q.3) Attempt any THREE of the following.   **12 Marks**

    a) Draw a well labeled single line diagram of AC supply system.

    b) Compare HVDC and EHVAC transmission system (any four point).

    c) Explain the Ring Main system of distribution and state its advantages.

    d) Give the classification of underground cable according to voltage and state its applications.

Q.4) Attempt any THREE of the following.   **12 Marks**

    a) Describe with sketch the construction method of 11 kV distribution system.

    b) Draw the equivalent circuit and phasor diagram of medium transmission line.

    c) Explain the features of wireless transmission of electrical power.

    d) Give the classification of distribution system. Write its advantages and disadvantages.

    e) A three phase overhead line is being supported by three disc insulators. The potential across the line unit is 17.5 kV. Assume that shunt capacitance between each insulator

and each metal work of tower to be $1/10^{th}$ of capacitance of insulator. Calculate: (i) Line voltage and (ii) String efficiency.

Q.5) Attempt any TWO of the following.   **12 Marks**
   a) State the effects of different power factor on efficiency and regulation of short transmission line.
   b) Explain the Ferranti effect and corona effect. Discuss any two methods of reducing corona.
   c) An overhead three phase transmission line delivers 5 MW at 22 kV at 0.8 lagging power factor. The resistance and reactance of each conductor is 4 Ohm and 6 Ohm respectively. Determine sending end voltage and percentage regulation.

Q.6) Attempt any TWO of the following.   **12 Marks**
   a) Compare Nominal - T and Nominal – π method of medium transmission line (Any six points).
   b) Draw the Single line diagram showing a typical arrangement of A.C. distribution system. State the requirements of ideal distribution system.
   c) Suggest with reason the type of insulators used for following voltage levels of transmission and distribution system.
     (i)   11 kV Distributors
     (ii)   132 kV Feeder
     (iii)   400 kV Tower
     (iv)   33 kV Distributor.

Scheme -I

Sample Test Paper - I

Program Name	: Electrical Engineering Program Group
Program Code	: EE/EP/EU
Semester	: Fourth
Course Title	: Electric Power Transmission and Distribution
Marks	: 20

$$\boxed{22419}$$

Time: 1 Hour

Instructions:

(1) All questions are compulsory.

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

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **(08 Marks)**

    a) Define primary and secondary distribution system.

    b) State the characteristics of high voltage for power transmission.

    c) Classify transmission system according to voltage level.

    d) State the necessity of transposition of conductors.

    e) Draw the equivalent circuit diagram of nominal T representation of medium transmission line.

    f) Give the classification of line as per the distance.

Q.2 Attempt any THREE. **(12 Marks)**

    a) Draw a well labeled single line diagram for 11 kV / 400 V distribution substation.

    b) Describe with sketch construction method of 220 kV transmission system.

    c) Explain skin effect and proximity effect.

    d) Describe with sketch the various line parameters and type of specified lines.

    e) State the effect of unity power factor on efficiency and regulation of transmission line.

    f) Compare Nominal - T and Nominal – π method of medium transmission line (Any four points).

Scheme -I

Sample Test Paper - II

Program Name	: Electrical Engineering Program Group
Program Code	: EE/EP/EU
Semester	: Fourth
Course Title	: Electric Power Transmission and Distribution
Marks	: 20

22419

Time: 1 Hour

Instructions:

(1) All questions are compulsory.

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

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. (08 Marks)

   a) State any two routs of HVDC transmission line network in India.

   b) Distinguish between feeder and distributor.

   c) Draw the neat diagram of radial distribution scheme.

   d) Draw the symbols of lightning arrester and circuit breaker.

   e) Define sag and state the significance of it.

   f) State any four properties of insulating materials.

Q.2 Attempt any THREE. (12Marks)

   a) State the factors to be considered for designing feeders and distributors.

   b) Compare EHVAC and HVDC transmission lines on the basis of voltage level, amount power delivered, and transmission cost and interference effect.

   c) List any four basic components present in distribution system. Also state function of each.

   d) A three phase overhead line is being supported by three disc insulators. The potential across the line unit is 17.5 kV. Assume that shunt capacitance between each insulator and each metal work of tower to be $1/10^{th}$ of capacitance of insulator. Calculate: (i) Line voltage and (ii) String efficiency.

   e) Draw diagram of underground cable showing all the parts.

   f) Draw the connection diagram of grid distribution system and write any two disadvantages of the system.