

# 22419

**11920**

**3 Hours / 70 Marks**

Seat No.

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- 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) Attempt answers in sequential order, preferably.
- (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 meaning of Single line diagram
- b) State the classification of transmission lines depending on length of transmission lines.
- c) State the type of distribution substation.
- d) List different transmission line components used for power transmission. (any four)
- e) State features of wireless power transmission.
- f) State line parameters of transmission line.
- g) Define voltage regulation and Transmission Efficiency.

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- 2. Attempt any THREE of the following: 12**
- a) Differentiate between overhead transmission and underground transmission.
  - b) Draw the layout of Homopolar transmission line.
  - c) State the advantages of use of high voltage in transmission of Electric power.
  - d) Draw the layout of power system indicating Generation, Transmission and distribution parts.
- 3. Attempt any THREE of the following: 12**
- a) Draw the diagram representing transposition of conductor and state its importance.
  - b) State the standard voltage in India for Generation, transmission distribution system.
  - c) List the factors to be considered while designing feeders and distribution with their functions in brief.
  - d) State advantages and disadvantages of radial distributor system.
- 4. Attempt any THREE of the following: 12**
- a) List classification of distributor system with their advantages each. (any two)
  - b) A 3- $\phi$  overhead line supported by 6 disc insulators, the potential across the unit is 11 KV. Assuming shunt capacitance between each Insulator and each metal link is of 1/5th of capacitance of insulator. Calculate :
    - (i) line voltage
    - (ii) string efficiency.
  - c) State the meaning of skin effect and how can it be minimised.
  - d) Draw the diagram of pin type and suspension type insulators.
  - e) State the effects of low power factor on efficiency and voltage regulation of short transmission lines.
  - f) State the condition for selecting site for distribution substation.

- 5. Attempt any TWO of the following:** **12**
- a) Derive equation for string efficiency with 3 - disc insulators of suspension type.
  - b) Define Corona, List its causes and state how can it be avoided. (two each)
  - c) State the meaning of ferranti effect and proximity effect.
- 6. Attempt any TWO of the following:** **12**
- a) Compare nominal - I and nominal - II method of transmission line (Any six points)
  - b) State the meaning of FACTS and explain in brief d-types facts controller.
  - c) (i) List the properties of line insulators in brief.  
(ii) List the methods of Line Support Erection and explain in brief any one.
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