

313333

12526

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answer with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) 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) Name any two hydro-plants in Maharashtra with their capacity.
- b) State any two advantages of thermal power plant.
- c) Define the following terms :–
- i) Cold reserve
- ii) Spinning reserve.
- d) Define Maximum Demand and Demand Factor.
- e) State the skin effect of transmission line. Where this effect occurs?
- f) Give the classification of transmission line based on voltage.
- g) State four HVDC transmission line route on India with their voltage level.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) State the factors governing the selection of site for thermal power plant.
 - b) Draw a neat sketch of Bipolar HVDC transmission system. State any two merits of the same.
 - c) Explain the phenomenon of Corona. State how Corona effect can be reduced?
 - d) Classify distribution substation on basis of –
 - i) Service requirement
 - ii) Constructional feature.
- 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) Explain the features of wireless transmission of electrical power.
 - c) Draw the single line diagram (layout) of 33/11 kV substation.
 - d) Explain with diagram radial type distribution system.
- 4. Attempt any THREE of the following: 12**
- a) Draw the layout of a hydro-electric power plant and also state the function of reservoir and surge tank.
 - b) Draw and explain load duration curve used in power system operation.
 - c) Draw a neat sketch of pin insulator. State any two causes of failure with its limitations.
 - d) Explain the Ferranti effect state when it occurs.
 - e) Draw and explain construction of underground cable.

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

- a) Draw a neat labelled layout of thermal power plant and explain the function of coal and ash handling plant.
- b) The load generating station charges as recorded in the following table during 24 hours of a day :-

Time (Hours)	0-6	6-10	10-16	16-20	20-24
Load (MW)	40	80	60	70	60

Draw the daily load curve and load duration curve.

- c) In medium transmission line, for nominal T method, show the derivation for sending end voltage with the help of neat phasor diagram.

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

- a) Describe the specific safe practices to be followed with respect to hydro power plants.
- b) Compare nominal 'T' and nominal "pi" method of medium transmission line. (Any six points)
- c) Describe ring main system of distribution with diagram. Also state any two advantages of ring distribution load.
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