

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

**ELECTRIC POWER GENERATION, TRANSMISSION
AND DISTRIBUTION**

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. State the function of economiser in steam power station.
2. Define the term connected load.
3. Illustrate the skin effect experienced in conductors.
4. Define Ferranti effect.
5. Define the term voltage regulation.

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Draw the layout of Hydro electric power station.
2. Explain the objectives of tariffs in electrical power system.
3. Define the terms : (a) capacity factor (b) Average load (c) Max. Demand.
4. Explain the methods of improving string efficiency with necessary reasons.
5. Explain different transmission line parameters.
6. Explain various methods of underground cable laying.
7. Give the advantages of high voltage AC system for transmission.

(5×6 = 30)

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Draw the layout of a nuclear power plant. 8
- (b) A hydroelectric generating station is supplied from a reservoir of capacity $5 \times 10^6 \text{ m}^3$ at a head of 200m. Find the total energy available in kWh, if the overall efficiency is 75%. 7

OR

- IV (a) Draw the layout of thermal power station and describe its working. 8
- (b) Mention the factors to be considered for the selection of nuclear power plant. 7

UNIT — II

- V (a) State and explain load curve and load duration curve. 8
- (b) Explain different types of tariff used in electric system. 7

OR

- VI (a) A generation station has a maximum demand of 20 MW, a load factor of 60%, plant capacity factor of 48% and plant use factor of 80%. Find :
- (i) The daily energy produced
- (ii) The reserve capacity
- (iii) The number of operating hours per daily
- (iv) The maximum energy that could be produced daily if the generation station was running all the time. 8
- (b) Specify the load factor and its importance. 7

UNIT — III

- VII (a) Draw the single line diagram of a typical supply scheme. 8
- (b) Describe the transposition of conductors. 7

OR

- VIII (a) Compare AC and DC transmission system. 8
- (b) Define corona and the methods to reduce the effect of corona. 7

UNIT — IV

- IX (a) Explain about the different insulators used in overhead line. 8
- (b) Explain different causes of failures occur in insulators. 7

OR

- X (a) With neat figure explain Distribution system. 8
- (b) Describe the advantages of HVDC over AC transmission. 7