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(REVISION — 2015)

Reg. No.....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

ELECTRICAL 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 penstock in hydro electric power plant.
2. Name any two components of Gas power plant.
3. Define a Tariff.
4. Name any two types of insulators used in OH line system.
5. State the purpose of armouring in UG cable. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. A hydro electric generating station is supplied from a reservoir of capacity 5×10^6 cubic metres at a head of 200 metres. Find the total energy available in Kwh, if the overall efficiency is 75%.
2. Explain the function of surge tank in hydro electric power plant with a sketch.
3. Explain the following terms :

   (a) connected load (b) Maximum demand (c) Demand Factor.
4. Differentiate two part tariff and maximum demand tariff.
5. Draw a single line diagram of a typical ac power supply scheme with electrical power generation, transmission and distribution.
6. Explain different types of insulators used in ac distribution system with necessary sketches.
7. Explain. Feeder, Distributer and Service mains in an AC Distribution system with necessary diagram. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Explain any four site selection factors to install a steam power plant. 7

(b) Draw a labelled schematic diagram of hydro electric power plant and explain function of turbine and generator. 8

OR

IV (a) Draw a labelled schematic diagram of a steam power plant. 7

(b) Compare steam power plant and hydro electric power plant with at least six points. 8

UNIT — II

V (a) A consumer has a maximum demand of 200KW at 40% load factor. If the tariff is Rs. 100 per KW of maximum demand plus 10 paisa per Kwh, find the overall cost per kwh. 7

(b) Explain the following terms base load, peak load, diversity factor and capacity factor. 8

OR

VI (a) The maximum demand of a consumer is 4.4 KW and their total energy consumption is 8760 KWH. If the energy is charged at the rate of 20 paisa per unit for 500 hours use of maximum demand per annum plus 10 paisa per unit for additional units, calculate the annual bill and equivalent flat rate. 7

(b) Explain various types of load on power system. 8

UNIT — III

VII (a) Define sag in over head line. Explain factors effecting sag in OH line. 7

(b) Explain classification of overhead transmission line based on length and voltage. 8

OR

VIII (a) Explain string efficiency. Illustrate methods to improve string efficiency with necessary sketches. 7

(b) Explain the skin effect in transmission line with necessary sketch and also mention the factors depend to skin effect. 8

UNIT — IV

IX (a) Explain methods of AC distribution system based on connection scheme. 7

(b) Name power factor improving equipments. Explain any three methods of power factor improvement in distribution system. 8

OR

X (a) Compare Over head and under ground distribution system. 7

(b) Explain any three methods of cable laying of UG cable with necessary sketches. 8

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