TED (10) – 4035

Reg. No. .....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

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. List any four non conventional sources of energy.
2. Identify the main objective behind the pulverization of coal.
3. Define connected load.
4. Define Ferranti effect.
5. Name any four types of insulators used in OH system. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the classification of hydro electric power station on the basis of availability of head of water.
2. Discuss the merits and demerits of Diesel power station.
3. List out the major costs associated with the generation of electric power.
4. A generating station has an installed capacity of 60000 KW and delivers 200×10^6 units per annum. If the annual fixed charges are ₹ 200per KW installed and running charges are 10paise per KWh, determine the cost per unit generated.
5. List out the advantages of DC transmission system.
6. Classify underground cables on the basis of transmission voltage.
7. Derive the formula for finding sag when supports are at equal level. (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) Draw a general layout of Hydro Electric Power station and explain the functions of different components. 8

(b) List the important factors to be considered in the site selection of Nuclear Power Station. 7

OR

IV (a) Sketch the schematic arrangement of a gas power station and explain the main stages. 8

(b) 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 over all efficiency is 75%. 7

UNIT — II

V (a) Explain the terms :

(i) Load factor (ii) Base load

(iii) Peak load (iv) Average load 8

(b) Define Tariff and explain the major types of Tariff. 7

OR

VI (a) Calculate the annual bill of a consumer with the following data. Maximum demand 100 KW, power factor 0.8 lagging, load factor 60%. The Tariff used is ₹ 75 per KVA of maximum demand plus 15 paisa per KWh consumed. 8

(b) Compare cost of generation and choice of site for different power stations. 7

UNIT — III

VII (a) Define transposition and state the necessity of transposition in over head transmission lines. 8

(b) List out the important characteristics of insulating materials used in under ground cables. 7

OR

VIII (a) Sketch the general construction of an underground cable and explain the parts. 8

(b) Explain the theory of corona formation and list the factors affecting corona. 7

UNIT — IV

IX (a) Explain the advantages of HVAC. 8

(b) List out the various electric power distribution systems and explain. 7

OR

X (a) Distinguish between overhead and under ground systems of electric power transmission. 8

(b) Explain the effect of wind and ice coating on over head transmission lines. 7