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

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. Write the function of moderator in Atomic power plant.
2. Classify Hydel power plant based on head.
3. Name any two performance characteristic of short transmission line.
4. Define Voltage Regulation.
5. List the objectives of Tariff.

(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 Gas Power Plant and mark each part.
2. Discuss the function of Super Heater.
3. Draw the schematic diagram of Distributer - feeder-service mains.
4. Write the function of armouring in UG cables.
5. Define corona and factors effecting Corona.
6. Distinguish between Base load and Peak load power plant.
7. Explain different methods of Power factor improvement.

(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) Explain the working of Hydro electric power plant with the help of neat sketch. 10

(b) Indicate the function of economiser. 5

Or

[10]

[P.T.O.

Marks

IV (a) Explain the working of diesel power plant with neat sketch. 10

(b) Write the functions of surge tank. 5

Unit — II

V (a) A Thermal power station supplies the following loads to various consumers. Industrial consumer = 1500 KW, commercial establishment = 750KW, Domestic Power = 550 KW.

If the maximum demand on station is 2500 KW and the number of kWh generated per year is 4500000, determine :

    (i) Diversity factor   (ii) Annual load factor 9

(b) Discuss different type of cost in generation of energy. 6

Or

VI (a) Explain different type of Tariff, write the advantage and disadvantage of each. 9

(b) The tariff in force is ₹ 150 per KVA of Maximum demand and 8 paisa per unit consumed. If the load factor is 30%, find the over all cost per unit at

    (i) unity p.f.   (ii) 0.7 p.f. 6

Unit — III

VII (a) A transmission line has a span of 214 m between level supports. The conductors have a cross sectional area of 3.225cm^2. Calculate the factors of safety under the following condition :

Vertical sag = 2.35m.   Wind pressure = 1.5kg/m run

Breaking stress = 2540kg/cm^2 Weight of conductor = 1.125kg/m run 9

(b) Classify transmission line based on length and operating voltage. 6

Or

VIII (a) Express the calculation of Sag in equal and unequal levels. 10

(b) Discuss Transmission line parameters. 5

Unit — IV

IX (a) What are the different methods of voltage regulation and explain. 10

(b) Compare OH and UG. 5

Or

X (a) Explain given list of insulators with figure.

    (i) Pin type   (ii) Strain type

    (iii) Suspension type   (iv) Shackle type 9

(b) Distinguish between Feeder and Transmission line. 6