

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL-2021**

ELECTRICAL POWER GENERATION, TRANSMISSION AND DISTRIBUTION

[Maximum marks: 75]

(Time: 2.15 Hours)

PART – A

I (Answer any **three** questions in one or two sentences. Each question carries 2 marks)

1. Write the function of moderator in nuclear power plant.
2. Define: (a) Load factor (b) Diversity factor
3. List the materials used as conductors
4. Define voltage regulation.
5. Define skin effect. (3 x 2 = 6)

PART – B

II (Answer any **four** of the following questions. Each question carries 6 marks)

1. Explain the factors for the selection of choice of site for atomic power plant.
2. Draw the layout of gas power plant.
3. A diesel power station supplies the following loads to various consumers: Industrial consumer = 1500kW; Commercial establishment = 750kW Domestic power = 100kW; Domestic light = 450kW, If the maximum demand on the station is 2500kW and the number of kWh generated per year is 45×10^5 , determine (i) diversity factor (ii) annual load factor.
4. Write the advantages of interconnected grid system.
5. Define corona and explain the factors affecting its formation.
6. Explain the different methods for power factor improvement in distribution systems.
7. Explain the general construction of underground cable with a suitable diagram. (4 x 6=24)

PART – C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT – I

III. (a) Draw the schematic arrangement of steam power plant and mark its parts (8)

(b) Write the importance of surge tank in hydroelectric plant (7)

OR

IV.(a) Explain the working of hydroelectric power station with the help of a neat layout. (9)

(b) Differentiate between thermal and diesel power plant. (6)

UNIT-II

V. (a) Explain the different types of tariff. (7)

(b) Calculate the annual bill of a consumer whose maximum demand is 100kW, p.f=0.8 lagging and load factor = 60%. The tariff used is Rs.75 per kVA of maximum demand plus 15 paise per kWh consumed. (8)

OR

VI.(a) A factory has a maximum demand load of 240kW at 0.8p.f lagging with an annual consumption of 50,000units. The tariff is Rs.50per kVA of maximum demand plus 10 paise per unit. Calculate the flat rate of energy consumption. What will be the annual saving if p.f is raised to unity. (9)

(b) Explain the terms (i) base load, (ii) peak load (iii) load curve (6)

UNIT-III

VII.(a) Define sag. Derive the expression for sag when supports are at equal levels (8)

(b) Explain the classification of transmission line based on length and operating voltage (7)

OR

VIII.(a) Compare AC and DC transmission. (9)

(b) Explain transmission line parameters (6)

UNIT-IV

IX. (a) State string efficiency. Describe the different methods to improve string efficiency. (9)

(b) Explain intersheath grading (6)

OR

X. (a) Explain the different methods in which a cable can be laid (9)

(b) Draw and explain Radial system and Ring system of distribution (6)
