N19-00388

TED (15) – 4034

Reg. No. ....

(REVISION — 2015)

Signature ....

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

ELECTRICAL POWER GENERATION, TRANSMISSION & 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. Function of economiser in a thermal power plant.
2. Write mass energy relationship.
3. Define the term skin effect.
4. Define the term Tariff.
5. State the purpose of armouring.

(5×2 = 10)

PART — B
(Maximum marks : 30)

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

1. Explain any three factors governing the site selection of a nuclear power station.
2. Determine the cost of energy based on tariff.
3. State any three advantages of atomic (nuclear) power station.
4. Write any three comparisons between ring and radial system for power distribution.
5. Define corona, state the factors affecting corona.
6. How underground cables are classified according to voltage ?
7. A 3 phase overhead line conductor is arranged in a horizontal plane and is 3m apart. The diameter of each conductor is 1cm. Calculate the capacitance per km of each conductor.

(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 factors are to be considered for the selection of site for Hydroelectric power station.   6

(b) Explain the working of steam power plant with necessary schematic lay out.   9

OR

[94]

[P.T.O.

Marks

IV (a) Explain the working of a gas power plant with a schematic diagram.   8

    (b) Draw the schematic diagram of a nuclear power plant and mention each part.   7

Unit — II

V (a) Define the following.

      (i)   Load Factor   (ii)   Demand Factor

      (iii) Maximum Demand   (iv) Diversity Factor   8

    (b) Calculate the annual bill of a consumer whose maximum demand is l00Kw.pf is 0.8 lagging and load factor 50%. The tariff used is Rs.75 per KVA of maximum demand plus 15 paise per KWH consumed.   7

Or

VI (a) Discuss the advantages of interconnected system.   7

    (b) The maximum demand of a consumer is 20A at 220V and his total energy consumption is 8760 KWH. If the energy is changed at the rate of 20 paise per unit for 500 hours use of the maximum demand per annum plus 10 paise per unit for additional units, Calculate

      (i)   The annual bill   (ii) Equivalent flat rate   8

Unit — III

VII (a) What is meant by sag in a transmission line ? List the factors which affect the sag.   7

    (b) Calculate the sag of an OH line of span 200m between level support. The conductor diameter is 1.2 cm and weighs 0.7 kg/m length. The permissible tension is 825 kg. The wind pressure is 42.5 kg/M^2 of projected area.   8

Or

VIII (a) How transmission lines are classified ? Explain each one of them.   7

    (b) A short 3 phase transmission line with resistance readance of each conductor is 6Ω and 8Ω per phase has a sending and receiving end voltage of 120kV and 110kV respectively for some receiving end load at a pf 0.9 lagging. Determine (i) power output (ii) sending end power factor.   8

Unit — IV

IX (a) Explain construction of a UG cable with neat sketch.   9

    (b) What is cable grading ? Explain different cable grading.   6

Or

X (a) Describe feeder, distributor and service main in supply.   8

    (b) Compare overhead transmission line and underground system.   7

———————