FOURTH SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND ELECTRONICS ENGINEERING

ELECTRICAL POWER GENERATION, TRANSMISSION AND DISTRIBUTION

(Model Question Paper)

[Time: 3 Hours ]

(Maximum Marks 100)

PART A

(Maximum Marks 10)

I Answer the following questions in one or two sentences .Each question carries 2 marks
1. List any two nonconventional methods of electrical power Generation
2. State function of an air pre-heater of Thermal power plant.
3. Define load factor
4. Define sag in overhead line
5. Illustrate the String efficiency

PART B

(Maximum Marks 30)

II Answer any Five of the following questions .Each question carries 6 marks
1. Draw the labelled layout of gas power plant and Explain the function of Turbine.
2. Find the Power in HP that can be developed from a hydro Electric power station having the following data catchment area : 400 sq. Km, average rain fall 1.2 m/year, Run off : 75%, Available head : 350 m, Overall efficiency of power station 70%
3. Compare two part Tariff and maximum demand Tariff
4. Explain classification of transmission line based on length and operating voltage
5. An over head transmission line has a span of 220 m, the conductor weighing 604 kg/km. Calculate the maximum sag if the ultimate tensile strength of conductor is 5758 kg. Assume a factor of safety = 2
6. Draw the labelled lay out of feeder distributed service mains
7. Illustrate EHV and HVDC

PART C
[Maximum Marks 60]

(Answer one full question from each module. Each full carries 15 Marks)

MODULE-I

III  What are the essential equipments used in Hydro electric power plant and explain with neat sketch  15

OR

IV  a) Draw the labeled layout of atomic power plant and explain functions of turbine and generator  7
b) Differentiate conventional and nonconventional methods of power generation  8

MODULE-II

V  a) Compare Capital and operational cost of Generating station  7
b) Annual peak load on a 50 MW power station is 40 MW. The power station supplies loads having maximum demands of 20 MW, 16 MW, 4 MW and 3.5 MW. The annual load factor is 45%. Find 1) average load  2) Energy supplied /year 3) demand factor 4) Diversity factor  8

OR

VI  a) Draw and explain load curve of a generating station  7
b) Maximum demand of a consumer is 20 Ampere 220 volts and his total energy consumption is 8760 KWh, if the energy is charged at the rate of 30 paisa /units for 500 hours use of maximum demand / annum plus 15 paisa / units for additional units. Calculate the annual bill and equivalent flat rate.  8

Module-III

VII  Draw and explain single line diagram of atypical supply scheme showing generation Transmission and distribution  15

OR

VIII  a) Draw and explain the Ferranti effect in transmission line  7
b) An overhead transmission line deliver 8000 KW at 22 KV, 0.8 Pf lagging. The resistance and reactance of each conductor is 3 ohm and 8 ohms respectively. Determine the sending end voltage, % regulation and Transmission efficiency  8

MODULE IV

IX  a) Comparison between OH and UG distribution systems  7
b) Explain any two voltage regulating devices  8

OR

X  a) Explain the construction of UG cable with neat sketch  7
b) Illustrate methods of power factor improvement in distribution systems  8

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