Total number of printed pages: **02** **D/5th/DEE511**

2022

GENERATION, TRANSMISSION AND DISTRIBUTION OF POWER

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	**'Hydro power is a clean power generation system with low running cost'**. Briefly explain.	5
	b)	Write five advantages and five disadvantages of hydroelectric power plants.	5+5=10
	c)	Briefly write about the classification of hydroelectric power plants.	5
2	a)	Draw a top view of hydro plant and write about the following- Catchment area, Dam, reservoir, penstock	2+4×2=10
	b)	A proposed hydroelectric station has an available head of 30m, catchment area of 50,000000 sq.m, the rainfall for which is 120 cm/annum. If 70% of the total rainfall can be collected, calculate the power that could be generated. Assume the following efficiencies- Penstock- 95%, Turbine- 80%, Generator- 85%	10
3	a)	What are the major equipment used in thermal power stations?	7
	b)	A 100 MW coal-fired power station uses coal of calorific value 6400 Kcal/Kg. Thermal efficiency of the station is 30% and electrical efficiency is 90%. Calculate the coal consumption per hour when the station is delivering its full rated output.	6
	c)	What are the criteria need to be considered for selection of sites for a thermal power station.	7
4.	a)	Write the SI units of the following- Force, power, acceleration due to gravity, temperature, energy	1×5=5
	b)	What do you mean by one kWh? Where it is used? What is B.O.T ?	3+1+1=5

	c)	Details of load connected in a premise through a supply meter is given below- 9 lamps of 40W each, working for 6 hrs/day 9 Fans of 50W each, working for 10 hrs/day One 1.5 kW heater load working for 0.5 hrs/day A domestic pump-set of 0.5 HP, working for 0.5 hrs/day If the cost of electrical energy per unit is Rs.5, calculate the energy bill for the month of July.	10
5	a)	With a neat diagram, briefly explain how electrical power is generated in generating stations, transmitted and finally distributed to the end consumers.	10
	b)	What are the different types of connection schemes used in AC distribution system?	10
6	a)	What are the primary requirements of a distribution system?	10
	b)	Now-a-days AC is used all over the world for the generation, transmission and distribution of power. Write about the primary and secondary AC distribution system.	5+5=10
7.	a)	Write about the **'Environmental aspects of power generation'**	10
	b)	Prepare a short note on AC Vs DC transmission.	10