SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES

(AUTONOMOUS)

DEPARTMENT OF MECHANICAL ENGINEERING

QUESTIONBANK

IV / VII SEMESTER **REGULATION:R23**

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QUESTIONBANK

Question No.	Questions	BT Level
	Unit-I: Introduction to the Sources of Energy	
	PART-B (Ten Marks Questions)	
1	Explain the development of power generation in India and discuss the various conventional and non-conventional energy sources.	L2
2	Describe the capital cost, fixed charges, and operating costs involved in a power plant with suitable examples.	L2
3	Draw and explain the general arrangement of power distribution in a power system.	L2
4	Explain load curve and load duration curve. State their importance in power plant planning.	L2
5	Define connected load, maximum demand, demand factor, load factor, diversity factor and average load with suitable examples.	L2
6	Solve numerical problems related to demand factor, load factor and diversity factor.	L3
7	Explain different types of tariffs used in electrical power systems and compare their advantages.	L2
8	Discuss the environmental impacts caused by power plant effluents and explain pollution standards.	L3
9	Describe different methods used for pollution control in thermal power plants.	L2
10	Explain the inspection procedures and safety regulations followed in power plants.	L2

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Question No.	Questions	BT Level
	Unit-II: Steam Power Plant	
	PART-B(Ten Marks Questions)	
1	Explain the construction and working of modern high-pressure and supercritical boilers.	L2
2	Discuss various methods used for improving steam power plant cycle efficiency.	L3
3	Explain waste heat recovery systems and their significance in power plants.	L2
4	Describe the construction and working of Fluidized Bed Combustion (FBC) boilers.	L2
5	Explain the coal handling system and discuss the selection of coal handling equipment.	L2
6	Describe various ash handling systems used in steam power plants.	L2
7	Explain the working of pulverized fuel firing system with a neat sketch.	L2
8	Compare travelling grate, spreader and retort stokers used in steam power plants.	L4
9	Explain cooling towers, dust collectors and heat rejection systems used in thermal power plants.	L2
10	Discuss pollution caused by thermal power plants and explain different pollution control techniques.	L3

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Question No.	Questions	BT Level
	Unit-III: Diesel and Gas Turbine Power Plants	
	PART-B(Ten Marks Questions)	
1	Explain the layout and working of a diesel power plant with auxiliaries.	L2
2	Discuss the construction and operation of fuel storage systems used in diesel power plants.	L2
3	Classify gas turbine power plants and explain their construction.	L2
4	Explain the working principle of an open-cycle gas turbine power plant.	L2
5	Explain the working principle of a closed-cycle gas turbine power plant.	L2
6	Compare open-cycle and closed-cycle gas turbine power plants.	L4
7	Discuss the advantages and disadvantages of gas turbine power plants.	L2
8	Explain the layout and auxiliaries of a gas turbine power plant.	L2
9	Describe the working principle of a combined cycle power plant and explain its advantages.	L3
10	Compare diesel power plants with gas turbine power plants based on efficiency, cost and applications.	L4

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Question No.	Questions	BT Level
	Unit-IV: Hydro Electric Power Plant	
	PART-B(Ten Marks Questions)	
1	Explain the hydrological cycle and methods of flow measurement used in hydroelectric plants.	L2
2	Discuss drainage area characteristics and hydrographs used in hydro power planning.	L2
3	Explain storage and pondage with neat sketches.	L2
4	Classify dams and spillways with suitable diagrams.	L2
5	Explain the layout of a hydroelectric power plant.	L2
6	Describe the auxiliaries used in hydroelectric power plants.	L2
7	Explain the operation of hydroelectric power plants.	L2
8	Describe the working principle of pumped storage power plants.	L2
9	Compare storage, run-of-river and pumped storage hydroelectric plants.	L4
10	Discuss the advantages, disadvantages and applications of hydroelectric power plants.	L3

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Question No.	Questions	BT Level
Unit-V: Power from Non-Conventional Sources & Nuclear Power Plant		
	PART-B(Ten Marks Questions)	
1	Explain the construction and working principle of solar collectors used for power generation.	L2
2	Describe the working principle of wind energy conversion systems and explain HAWT and VAWT.	L2
3	Compare Horizontal Axis Wind Turbines (HAWT) and Vertical Axis Wind Turbines (VAWT).	L4
4	Explain the principle of tidal energy generation with suitable diagrams.	L2
5	Describe the working principle of Magneto Hydrodynamic (MHD) power generation.	L2
6	Explain the construction and working of a nuclear power station.	L2
7	Discuss nuclear fission, chain reaction, breeding and fertile materials used in nuclear reactors.	L2
8	Explain the construction and working of Pressurized Water Reactor (PWR) and Boiling Water Reactor (BWR).	L3
9	Compare different types of nuclear reactors such as PWR, BWR, Fast Breeder Reactor and Gas Cooled Reactor.	L4
10	Discuss radiation hazards, shielding techniques and radioactive waste disposal methods in nuclear power plants.	L3

**ALLTHEBEST **