

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (OLD) EXAMINATION – WINTER 2023****Subject Code:2171910****Date:19-12-2023****Subject Name: Power Plant Engineering****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Draw neat sketch of Schmidt hartmann boiler.	03
	(b) Draw layout of feed water and steam circuit for thermal power plant.	04
	(c) Explain ball and race mill with neat sketch.	07
Q.2	(a) What do you understand by out plant handling of coal?	03
	(b) Explain the necessity of feed water treatment. What are the major impurities present in feed water.	04
	(c) Explain principle and working of reverse osmosis process.	07
	OR	
Q.3	(c) Explain central pulverized fuel handling system with neat sketch.	07
	(a) Define boiler draught. State the classification of boiler draught.	03
	(b) Explain central flow condenser with neat sketch.	04
	(c) Explain CANDU reactor with neat sketch.	07
	OR	
Q.3	(a) Give advantages of artificial draught over natural draught.	03
	(b) Define thrust, thrust power and thermal efficiency of jet engine.	04
	(c) Explain pressurized water reactor with neat sketch.	07
Q.4	(a) What is compounding of steam turbine?	03
	(b) Explain bypass governing of steam turbine with neat sketch.	04
	(c) Derive the expression of mass of steam discharge through the nozzle.	07
	OR	
Q.4	(a) State classification of steam turbine.	03
	(b) What is the effect of friction on the flow through a steam nozzle? Explain with the help of h-s diagram.	04
	(c) Explain reaction turbine with neat sketch.	07
Q.5	(a) Draw layout and T-S diagram of gas turbine with regenerator	03
	(b) Explain connected load, demand factor, peak load and average load for thermal power plant.	04
	(c) Discuss effect of operating variables on thermal efficiency of gas turbine.	07
	OR	
Q.5	(a) Draw layout and T-S diagram of gas turbine with intercooler	03
	(b) Explain important of load factor in thermal power plant.	04
	(c) Explain combine steam and gas turbine power plant.	07