

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3171718****Date: 21/06/2023****Subject Name: Power Plant Instrumentation****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) Classify conventional and non-conventional energy sources.	03
	(b) Briefly explain boiler draft control.	04
	(c) Explain the importance of instrumentation for hydroelectric power plant.	07
Q.2	(a) What are the various sources of Electrical Energy?	03
	(b) Explain Air-Fuel ratio control in boiler.	04
	(c) Explain in brief about Energy management.	07
	OR	
	(c) What are the issues in boiler drum level control? Explain boiler feed water circulation.	07
Q.3	(a) Enlist analytical instruments used in thermal power plant.	03
	(b) Explain in brief about principal of nuclear power plant.	04
	(c) Explain about safety and safety related systems in nuclear power plant.	07
	OR	
Q.3	(a) Give classification of hydroelectric plant	03
	(b) Justify the need of nuclear power plant training simulator.	04
	(c) Explain turbine monitoring and control.	07
Q.4	(a) Explain principle of solar cell.	03
	(b) Enlist two major advantages and two major disadvantages of thermal power plant.	04
	(c) With suitable diagram explain in brief about nuclear reactor.	07
	OR	
Q.4	(a) What are the important considerations in the site selection of nuclear power plant?	03
	(b) What is the difference between natural and forced boiler feed water circulation?	04
	(c) Explain design concepts of CWR, PWR and BWR reactors.	07
Q.5	(a) What is the purpose compounding of steam turbine?	03
	(b) Explain monitoring of voltage & frequency of output power.	04
	(c) Explain instrumentation and control in air-fuel circuit in a boiler.	07
	OR	
Q.5	(a) List out main components of hydro power station.	03
	(b) Explain measurement of mechanical parameters in turbine.	04
	(c) Explain the importance of instrumentation for power generation?	07
