

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3151705****Date:27/01/2021****Subject Name:Process Control****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		Marks
Q.1	(a) With temperature control loop, explain the manipulated variable and controlled variable terms.	03
	(b) Draw flow and Level control loop.	04
	(c) List and explain seven control objectives of process control	07
Q.2	(a) Describe the following terms (1)Process Load (2)Dead time	03
	(b) What is FOPDT modeling method.	04
	(c) Explain two position control with application area.	07
Q.3	(a) What is importance of bias in Proportional control.	03
	(b) Give features of P, I and D mode of control action.	04
	(c) Derive the transfer function of two non-interacting tank.	07
Q.4	(a) Define proportional band. Show the diagram showing relation between different value of gain and PB.	03
	(b) Explain the override control of A boiler with diagram.	04
	(c) Explain closed loop tuning method for PID Controller with one example.	07
Q.5	(a) What are the applications of mathematical modelling in process control are?	03
	(b) What is integral windup? Draw the strategy for preventing windup.	04
	(c) Explain proportional control scheme with features, limitations and its remedy. Provide neat sketch for support of the same.	07
Q.6	(a) Show the Auctioneering control scheme for temperature control in tubular reactor.	03
	(b) Explain direct and reverse action of a controller with suitable example.	04
	(c) Explain the PI composite control mode in detail.	07
Q.7	(a) Draw the scheme of pressure control in a reactor using split range control technique.	03
	(b) Draw the diagram of selective control technique.	04
	(c) Explain Cascade Control system in detail	07

- Q.8** (a) Explain PID tuning using open loop tuning method in brief. **03**
- (b) Give difference between feedback and feedforward control system. **04**
- (c) Explain Ratio control system with one suitable process example **07**

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