Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

BE - SEMESTER-V • EXAMINATION - SUMMER • 2014

	U	t Code: 151704 Date: 24-06-2014 t Name: Industrial Control System	
Tir	•	10.30 am - 01.00 pm Total Marks: 70	
	2.	<ul><li>Attempt all questions.</li><li>Make suitable assumptions wherever necessary.</li><li>Figures to the right indicate full marks.</li></ul>	
Q.1	(a) (b)	Explain Ratio Control Scheme with neat schematic diagram. Explain Cascade control Scheme. Why secondary loop is faster than Primary Loop?	07 07
Q.2	(a) (b)	Enlist and discuss the distinguishing features of DCS.  Describe the merits and demerits of DCS.  OR	07 07
	<b>(b)</b>	Explain SCADA with neat sketch.	07
Q.3	(a) (b)	Draw PLC Ladder diagram to realize 4:1 multiplexer and explain it in brief. Explain Importance of PI diagram with Example.  OR	07 07
Q.3	(a) (b)	Give Classification of control valves. Explain Globe valve with neat sketch and its merits & demerits.  Enlist Selection criteria for Control Valves.	07 07
Q.4	(a) (b)	Explain DDC with example. Design PID temperature control system which inputs error in $0-4$ Volt range. The output of final control element is $0-8$ volt, for Kp=2.4%, Ki=9.0(%/min)/%, Kd = $0.7$ %/ (%/min)  OR	07 07
Q.4	(a) (b)	Explain Electronic Proportional Controller. Explain PI Controller with schematics & waveforms	07 07
Q.5	(a) (b)	Give the closed response of PID Controller. Why derivative action is not used alone? Explain PD controller mode with waveforms.	07 07
0.5	(.)	OR	07
Q.5	(a) (b)	Explain any one method of controller tuning.  Differentiate between the feedback & feed forward operation with the help of example.	07 07

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