Vithalbhai Patel & Rajratna P. T. Patel Science College Vallabh Vidyanagar - 388120 Internal Test (Theory) - 2018 T. Y. B. Sc. (Instrumentation - Vocational) US05CINV02 (Control Techniques - 1)

Date: 01/	10/2018	(Monday) 10:00 to 12:00 Max. Marks: 50)
Que 1		Objective type questions. [08]	_
	1	: The elapsed time between the instant a deviation occurs and the corrective	
		action first occurs.	
		a) Dead time b) Cycling	
		c) Process lagp d) Control lag	
	2	: The time for the process-control loop to make necessary adjustments to the	
		final control element.	
		a) Dead time b) Control lag	
		c) Cycling d) Process lag	
	3	An important characteristic of the control mode is that it produces a	
		permanent residual error in the operating point of the controlled variable when	
		change in load occurs.	
		a) Two-position b) Derivative	
		c) Proportional d) Integral	
	4	Offset is usually observed in control mode.	
		a) Integral b) Floating d) Proportional	
	5	c) Derivative d) Proportional The air used in instrument air system (IAS) must be	
	5	a) Clean b) Dry	
		c) Oil free d) All of these	
	6	The pressure levels used for IAS vary from about psig.	
	O	a) 0.4-12 b) 4-120	
		c) 40-120 d) 4-12	
	7	Oxygen has the property of being in nature.	
		a) Diamagnetic b) Paramagnetic	
		c) Ferromagnetic d) All of these	
	8	is/are paramagnetic in nature.	
		a) Nitric oxide b) Nitrogen dioxide	
		c) Both a) and b) d) None of these	
Que 2		Short questions (Any five). [10]	
	1	Define: Reverse and direct action.	
	2	Define: Control range and control parameter range.	
	3	Write main advantages of proportional-integral control mode.	
	4	Explain what offset is.	
	5	Enlist the important factors for designing of IAS.	
	6 7	Write briefly on sizing criteria. Give importance of gas analyzers.	
	8	Explain briefly infrared gas analyzer.	
Que 3	· ·	What do you mean by discontinuous control mode? Explain two-position control [08]	
Ques		mode. What is neutral zone?	
		OR	
		Write a detailed note on multiposition mode. Explain floating-control mode.	
Que 4		What do you mean by continuous control mode? Explain proportional control [08]	
		mode in detail.	
		OR	
		Differentiate discontinuous and continuous control mode. Explain integral	
		control mode in detail.	
Que 5		Write a note on air supply source and reciprocating type compressor. [08]	
		OR	
		Discuss screw compressor and liquid piston compressor.	
Que 6		Write a note on paramagnetic oxygen analyzer. [08]	
		OR	
		Discuss magnetic wind instruments.	