Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER • 2014

Subject Code: 162303 **Date: 01-12-2014**

Subject Name: Plastic Process Instrumentation and Process Control

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the block diagram of instrumentation process with neat sketch; also explain range, precision, types of errors, repeatability.	**07**
	(b)	Define the terms accuracy, resolution, also explain eddy current tachometer with neat sketch	**07**
Q.2	**(a)**	List the types of pressure transducers and explain the elastic pressure transducers with neat diagram.	**07**
	(b)	With the neat sketch and brief explain contact and noncontact method of temperature measurement	**07**
		OR	
	(b)	Describe the advantages and disadvantages of filled system thermometer with neat sketch.	**07**
Q.3	**(a)**	Define and describe static error, systematic error, random error and source of errors.	**07**
	(b)	Explain open loop system and closed loop system with neat diagram.	**07**
		OR	
Q.3	**(a)**	Explain radiation pyrometer with neat sketch.	**07**
	(b)	Explain extrudate thickness measurement and extrudate surface measurement with neat sketch	**07**
Q.4	**(a)**	What are automatic controllers? Give the classification of industrial controllers along with its block diagram.	**07**
	(b)	Write short notes on magnetic drag type tachometer and explain thermistors	**07**
		OR	
Q.4	**(a)**	Write short notes on (i)comparison between P, PI, PID type of control action and (ii) On – Off controllers	**07**
	(b)	What is the meaning for on-machine monitoring and also explain on-machine monitoring for injection molding	**07**
Q.5	**(a)**	Explain the thermocouple, and concept of power measurement in detail.	**07**
	(b)	Explain the total injection molding process control.	**07**
		OR	
Q.5	**(a)**	Explain barrel temperature measurement, power measurement, heating and cooling of extrusion molding process	**07**
	(b)	Explain contact and non contact method of temperature measurement with neat diagram briefly.	**07**

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