Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162303 Date: 23-05-2014

Subject Name: Plastics Process Instrumentation and Process Control

Time: 10:30 am - 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.**

Q.1	**(a)**	With suitable sketch explain open loop control system of screw travel speed in injection molding.	**07**
	(b)	With suitable sketch explain close loop control system of screw travel speed in injection molding.	**07**
Q.2	**(a)**	Explain the functional elements of an instrument with block diagram.	**07**
	(b)	Explain various static characteristics of an instrument in brief.	**07**
		OR	
	(b)	Explain with sketch multi ring dynamic valving & longitudinal torpedo to control the die pressure.	**07**
Q.3	**(a)**	Write short note on Dynamic characteristics of an instrument.	**07**
	(b)	With neat sketch explain diaphragm pressure transducer.	**07**
		OR	
Q.3	**(a)**	With neat sketch explain construction & working of Resistance thermometer.	**07**
	(b)	Write down short note on thermocouples.	**07**
Q.4	**(a)**	Explain process control technique during mold filling & packing phase.	**07**
	(b)	Write a short note on PID Injection pressure control.	**07**
		OR	
Q.4	**(a)**	What is meaning of On-Machine monitoring. Explain On-Machine monitoring for Injection molding process.	**07**
	(b)	Make a comparison sheet for various pressure transducers used in extrusion process.	**07**
Q.5	**(a)**	Explain with sketch die pressure control by means of a conical seating.	**07**
	(b)	Explain in brief - Barrel temperature measurements & Melt temperature measurements in extrusion process.	**07**
		OR	
Q.5	**(a)**	Explain On-Off temperature control & Proportional temperature control with suitable graphs.	**07**
	(b)	Draw a neat sketch of Blown film line showing its controls.	**07**

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