

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**
