Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VI • EXAMINATION – SUMMER 2013

Subject Code: 162303 Date: 28-05-2013 **Subject Name: Plastics Processing and Instrumental 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. 0.1 (a) Explain various static characteristics of an instrument in brief. 07 Define Accuracy, Precision, Repeatability, and Dead Zone 07 07 O.2Define True value, Static error, Random error and Source of Error. With neat sketch explain diaphragm pressure transducer. 07 Give a broad classification of Electrical Measuring Instruments. 07 Q.3 (a) Write short note on thermocouples. **07 (b)** Explain Eddy Current Tachometer with suitable sketch. 07 OR (a) Define, draw and derive equations for (i) Impulse function and 07 Q.3(ii)Sinusoidal input **(b)** Define, draw and derive equations for (i) Step Response and (ii) Impulse 07 Response 0.4 (a) Write a short note on PID Injection pressure control. 07 **(b)** Explain process control technique during mold filling & packing phase. 07 What is meaning of On-Machine monitoring. Explain On-Machine 0.4 07 monitoring for Injection molding process. A thermometer having time constant of 10 seconds is placed in a bath. **Q.4 07** After it reaches 30 °c as steady state, it is suddenly placed in a hot fluid at 60 °c. Sketch the response of the thermometer. Use graph paper to plot t and y (t). 0.5 (a) Explain in brief - Barrel temperature measurements & Melt temperature 07 measurements in extrusion process. (b) Make a comparison sheet for various pressure transducers used in 07 extrusion process. OR **Q.5** (a) Derive an equation for Impulse Response for less than 1, equal to 1 and 07 more than 1. **(b)** Explain strain gauge with neat sketch. 07 ******