

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (OLD) EXAMINATION – WINTER 2018****Subject Code:161702****Date: 04/12/2018****Subject Name: Process Control****Time: 02:30 PM TO 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) Classify the controller on the basis of modes of controller. Explain in detail **07**
(b) Write a note on necessity, importance and requirement of process control **07**
- Q.2** (a) What is feedback control? Write the elements of feedback control system with necessary figure **07**
(b) What are the approaches to control **07**
- OR**
- (b) What are the types of modelling? Also how to linearize the non linear system **07**
- Q.3** (a) Give the example of temperature-flow cascade control system. Explain the design criteria for the cascade control **07**
(b) What do you mean by offset in case of proportional controller mode? How offset can be eliminated? How PI control is better than only P controller? **07**
- OR**
- Q.3** (a) Explain feedback-feedforward control scheme with example? **07**
(b) Discuss floating control mode in detail **07**
- Q.4** (a) Explain the composite PI Controller with equation, transfer function and draw the response of PI controller to step input of error. Clarify the unit of gain of K_i . **07**
(b) Write notes on ratio control **07**
- OR**
- Q.4** (a) Enumerate feed forward control scheme with neat application diagram. **07**
(b) Explain the Zeigler Nichols method of controller tuning with example. **07**
- Q.5** (a) Explain static error, velocity error and offset **07**
(b) Explain split range control operation in detail **07**
- OR**
- Q.5** (a) Implement the Integral (I) control mode using operational amplifiers circuits **07**
(b) Explain selective control with suitable example **07**
