

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2162303

Date:28/04/2018

Subject Name:Plastic Process Instrumentation and Process Control

Time:10:30 AM to 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) Explain thermistors? **03**
 - (b) Define Calibration & explain general steps to perform it. **04**
 - (c) Explain the block diagram of instrumentation process with neat sketch. **07**

- Q.2**
- (a) Define: Accuracy, Precision, Repeatability. **03**
 - (b) Define: Dead Zone, Reproducibility, Range & Drift. **04**
 - (c) Explain Open loop & closed loop control system with neat diagrams. **07**

OR

- (c) Write a short note feed forward & cascade control system. **07**
- Q.3**
- (a) 1. Calibration is the process of _____ by _____ of the correct value of each scale reading on a meter. **03**
2. The average deviation is an _____ of the instruments.
 - (b) List different types of pressure control system. **04**
 - (c) Define and describe static error, systematic error, random error. **07**

OR

- Q.3**
- (a) 1. What type of manometer is best for measuring pressure with absolute precision? **03**
2. A pressure lower than atmospheric pressure is called _____.
3. Bimetallic thermometers strips are made of two metals with different _____.
- (b) Explain sources of error. **04**
 - (c) List the types of pressure transducers and explain the diaphragm pressure transducers with neat diagram. **07**
- Q.4**
- (a) 1. 1 atmospheric pressure (1 atm) = _____ psi. **03**
2. Metals used in Bourdon tubes should not undergo (a) fatigue (b) hysteresis (c) creep (d) all the above.
3. One torr is equal to _____.
 - (b) Explain proportional controllers. **04**
 - (c) Explain about the construction and working of a strain – gauge pressure transducer with the help of a neat sketch. What are the advantages & disadvantages? **07**

OR

- Q.4**
- (a) List the types of pressure transducers. **03**
 - (b) Describe piezoelectric pressure transducer. **04**
 - (c) Explain the diaphragm pressure transducers with neat diagram. **07**

- Q.5** (a) What are the different methods of measure Extrudate thickness? **03**
- (b) Explain Radiation pyrometer with neat sketch. **04**
- (c) Explain about LVDT in detail. **07**
- OR**
- Q.5** (a) Explain C type bourdon tube transducer. **03**
- (b) Describe the advantages and disadvantages of filled system thermometer with neat sketch. **04**
- (c) Write short note on thermocouples. **07**
