

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI- EXAMINATION – SUMMER 2016****Subject Code:161701****Date:19/05/2016****Subject Name:Instrumentation System****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) Draw the symbols for following: **07**
- | | |
|-----------------------------|--------------------|
| 1. Rotameter | 2. Frame arrester |
| 3. Rapture disk | 4. Butterfly valve |
| 5. Variable area flow meter | 6. Capillary tube |
| 7. Instrument in field | |
- (b) Classify the control panels and explain them in brief. **07**
- Q.2** (a) Draw & explain air supply distribution system for control panel. **07**
- (b) Give the various communications systems used in plant control room. Explain any two in details with its features. **07**
- OR**
- (b) Draw the P&I diagram for following: **07**
1. Level of closed water tank is measured by electrical type differential pressure transmitter and controlled by the valve on the outlet of the tank. The outlet valve is pneumatic air to open type.
 2. Flow rate of fluid is measured by electromagnetic flow meter and recorded by strip chart recorder.
- Q.3** (a) Draw the electrical loop wiring diagram and explain in detail. **07**
- (b) Describe the check list for good installation practice. **07**
- OR**
- Q.3** (a) Prepare the specification sheet for pressure transmitter. **07**
- (b) Define startup time. Discuss the problems to be faced during this period. **07**
- Q.4** (a) Compare pneumatic versus electronic instrumentation and control systems. **07**
- (b) Explain heatless and refrigeration type dryer in detail. **07**
- OR**
- Q.4** (a) Give details about duties, jobs and responsibilities of project manager. **07**
- (b) Discuss positive displacement type compressors. **07**
- Q.5** (a) Describe typical flow transmitter checkout procedure. **07**
- (b) Describe various methods used for pressure measurement. Explain selection criteria of sealed and non-sealed systems. **07**
- OR**
- Q.5** (a) Explain Intrinsic safety. Discuss its advantages and drawbacks. **07**
- (b) Compare process flow sheet and mechanical flow sheet. **07**