

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-VI Examination May 2011

Subject code: 161701

Subject Name: Instrumentation System

Date: 16/05/2011

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.

- Q.1** (a) What is Plant Air and what is Instrument Air ? Explain Instrument Air Supply system for any process industry with suitable diagram. **07**
- (b) Explain the classification of compressors used for Instrument Air Supply and explain any one type in detail. **07**

- Q.2** (a) What do you mean by plant Start up? Explain the plant start up procedure. **07**
- (b) Explain control valve check out procedure. **07**

OR

- (b) Explain Temperature Transmitter check out procedure. **07**

- Q.3** (a) Explain the installation details for Rotameter. **07**
- (b) What is P&I diagram? Explain it with a suitable process example related to temperature and pressure measurement. **07**

OR

- Q.3** (a) What is control panel? Compare various types of control panels in detail. **07**
- (b) Explain various points to be considered while designing a control room for any process industry. **07**

- Q.4** (a) What is pyrometer? In which case it is used? Explain optical pyrometer with suitable diagram. **07**
- (b) Explain the selection criteria for various level measurement methods. **07**

OR

- Q.4** (a) What is the necessity of dryers for Instrument Air System? Explain Desiccant type and Refrigeration type dryers. **07**
- (b) Explain the role of an Instrumentation Engineer in Instrument Project Control. **07**

- Q.5** (a) Draw the symbols for the following as per ISA standards. **07**
- 1) Four Way control valve 2) Venturi Tube 3) Electrical line 4) Magnetic Flow Meter 5) PLC 6) Capillary tube 7) Pneumatic Process Line

- (b) Explain the selection criteria for various flow measurement devices. **07**

OR

- Q.5** (a) What is Intrinsic Safety? Explain it in the context of processes and plants. **07**
- (b) What is loop wiring diagram? Explain it in the context of Temperature Measurement and Control for any process. **07**
