

GUJARAT TECHNOLOGICAL UNIVERSITY**DIPLOMA ENGG.- Vth SEMESTER-EXAMINATION – JUNE- 2012****Subject code: 351701****Date: 04/06/2012****Subject Name: Electronic & Pneumatic Instrumentation****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.
4. English version is considered to be Authentic

- Q.1** (a) What is instrumentation? Explain need of instrumentation in Automation. **07**
(b) Explain Electronic Integrator in detail. **07**
- Q.2** (a) Define the term: “isolation” . Why isolators are used? **07**
(b) Draw and explain Kelvin’s double bridge. **07**
OR
(b) Draw and explain Maxwell bridge. **07**
- Q.3** (a) Explain motion balance principle with the help of suitable diagram. **07**
(b) Explain electronic pressure transmitter (I to P) with block diagram. **07**
OR
- Q.3** (a) Explain pneumatic P+I controller with neat diagram. **07**
(b) Write short note on SMART transmitter. **07**
- Q.4** (a) Explain Square root extractor with the help of block diagram. **07**
(b) Draw the circuit diagram for the P+I and P+I+D control action using op-amp and also write the equation for the same. **07**
OR
- Q. 4** (a) Explain C. R. O. with the help of block diagram. **07**
(b) Explain electronic PI controller with neat sketch. State its advantages. **07**
- Q.5** (a) Explain Op-amp based Instrumentation Amplifier in detail. **07**
(b) Explain principle and operation of DVM with the help of circuit diagram. **07**
OR
- Q.5** (a) List out the types of proximity switch. Also discuss one application of it in process industry. **07**
(b) Explain how Controller alignment and tuning can be done. **07**
