Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering Semester –IV Examination Dec. - 2011

Subject code: 341703 **Date: 12/12/2011**

Subject Name: Control System Components

Time: 10.30 am – 1.00 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 Authentic.**

Q.1 (a) (i) Define the valve terminology. **04**

- Trim
- Valve body
- Normally Open
- Stem **03**

(ii) Explain check valve.

(b) What is the function of valve actuator in control valve? Explain single and double acting piston actuator. **07**

Q.2

(a) Explain solenoid valve in brief and write its application. **07**

(b) Define pneumatic positioner and explain electropneumatic positioner. **07**

OR

(b) Explain in brief butterfly valve. **07**

Q.3

(a) List the factor affecting control valve selection and explain any one. **07**

(b) Enlist various types of control valve noise. What are the different methods to reduce it? Explain any one. **07**

OR

Q.3 (a) Explain the control valve characteristcs. **07**

(b) Write the principle and types of gyroscope. Explain vertical gyroscope. **07**

Q.4

(a) List the various types of potentiometer. Explain potentiometer as a position indicator. **07**

(b) What is slewing rate in case of stepper motor? Explain in brief variable reluctance stepper motor. **07**

OR

Q. 4 (a) Write the difference between DC techogenerator and AC techogenerator. **07**

(b) Explain field controlled DC servomotor. **07**

Q.5

(a) What is 'equivalent noise resistance' in terms of potentiometer? Explain the potentiometer as an error detector. **07**

(b) List the various types of servomotors and explain the torque speed characteristics of two phase induction motor. **07**

OR

Q.5 (a) Explain the position control system with feedback using techogenerator. **07**

(b) Write a short note on 'Synchro as an error detector' **07**

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