

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 161703****Date: 23-05-2014****Subject Name: Control System Components****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) Explain valve flow characteristic with different shape of valve plug. **07**
(b) Explain the noise problems associated with control valve and their remedies. **07**
- Q.2** (a) Classify control valve and describe three-way valve in detail with application. **07**
(b) Define the following terminology. **07**
(i) Valve gain (v) Plug
(ii) Design rate (vi) Bonnet
(iii) Capacity requirement (vii) Yoke
(iv) Trim
- OR**
- (b) Write a short note on. **07**
(i) Level switch
(ii) Types of follower
- Q.3** (a) What is meant by backlash in gears? Also explain how backlash in the gears can be minimized by various methods **07**
(b) Explain valve selection guidelines for control valve **07**
- OR**
- Q.3** (a) Which are types of positioner used for control valve and explain force-balance type in detail. **07**
(b) What is the difference in working of A.C and D.C relay? Also explain electromechanical relay. **07**
- Q.4** (a) Give the definition of CV and Explain difference between constant pressure drop and variable pressure drop. **07**
(b) Explain different types of stepper motor and explain 2-phase on variable reluctance stepper motor. **07**
- OR**
- Q.4** (a) Explain different types of relay problems and explain how reduce of those problem. **07**
(b) What is the purpose of relieving devices? Explain the rupture disc operation. **07**
- Q.5** (a) Explain construction, working and application of induction motor. **07**
(b) Give the definition of contactor. Explain rated characteristic, demerits of contactor over relay **07**
- OR**
- Q.5** (a) What is actuator? Explain any one of type of actuator with appropriate diagram. **07**
(b) Explain intelligent transmitter with block diagram and merits. How the intelligent transmitter is different than ordinary electronic transmitter. **07**
