

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEMESTER-VIII(OLD) • EXAMINATION – WINTER 2017

Subject Code: 181702**Date: 02-11-2017****Subject Name: Motion Control****Time: 02:30 pm to 05:00 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 resolvers and magnetic pickups as a encoder. **07**
(b) List out selection criteria for dc motor for incremental motion applications. **07**
- Q.2** (a) Explain permanent magnet moving coil dc motor. **07**
(b) Explain the techniques for minimizing torsional resonance effect in detail. **07**
- OR**
- (b) List out all methods of speed control of dc motor and explain any one in detail. **07**
- Q.3** (a) Write a short note on unidirectional servo amplifier. **07**
(b) Explain bipolar PWM amplifiers. **07**
- OR**
- Q.3** (a) Draw and explain velocity control system with block diagram. **07**
(b) Write short not on phase locked servo system. **07**
- Q.4** (a) Describe the hybrid type step motor with relevant waveform/diagram. **07**
(b) List out the selection criteria for stepper motor. Explain step angle resolution and torque requirements. **07**
- OR**
- Q.4** (a) What are the advantages and disadvantages of step motors? Explain the step motor performance characteristics in detail. **07**
(b) Explain any two application of step motor. **07**
- Q.5** (a) Explain any one suppression circuit for DC motor control with diagram. **07**
(b) Explain effect of lead angle in closed loop control of step motor. **07**
- OR**
- Q.5** (a) Draw and explain bidirectional four-phase single and two phase on logic sequencer circuit with waveform of output phase for each pulses. **07**
(b) Why over drive circuits are required for step motors? Explain dual voltage control circuit. **07**
