

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E SEM-VII Examination-Nov/Dec.-2011

Subject code: 170806

Date: 29/11/2011

Subject Name: Digital Control System

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 the basic structure of a computer control system. **07**
(b) Explain the generalized operational block diagram of a feedback control system and derive its transfer function by classical approach. **07**

- Q.2** (a) Explain the advantages offered by Digital Control. **07**
(b) Explain Sampling and Quantization effect in detail. **07**

OR

- (b) Explain the process of Signal conversion and coding. **07**

- Q.3** (a) Explain Unit Sample Sequence and Unit Step Sequence. **07**
(b) Explain Practical Sample and Hold Circuit. **07**

OR

- Q.3** (a) Explain BIBO Stability in detail. **07**
(b) Explain the Jury Stability Criterion. **07**

- Q.4** (a) Why choice of Sampling Rate is so important? Justify it. **07**
(b) Compare Proportional–Integral Controller and Proportional Controller. **07**

OR

- Q.4** (a) What is Aliasing? Explain it by waveforms. **07**
(b) Write a short note on PID Controller. **07**

- Q.5** (a) Write a short note on Digital Temperature Control System. **07**
(b) Write a short note on Digital Position Control System. **07**

OR

- Q.5** (a) Explain the effect of High Gain on the Control system. Which are the Limiting factors for High Gain? **07**
(b) Explain Transient Accuracy for z – plane. **07**
