



Printed Pages: 2

TIC-13

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID: 0318

Roll No.

## B. Tech.

## (SEM. VII) EXAMINATION, 2008-09 COMPUTERISED PROCESS CONTROL

Time: 3 Hours]

Total Marks : 100

Note:

02191

- (1) Attempt any two parts from each question.
- (2) Any missing data may be assumed suitably.
- (3) Each question carry equal marks.
- 1 (a) Expain with block diagram the computer control system.
  - (b) Explain the various methods for data acquisition system with suitable diagram.
  - (c) With neat sketches and examples, explain the dynamic and steady-state responses of industrial process that contain resistance, capacitance and dead time elements.
- 2 (a) Describe with suitable examples the concepts of controllability and observability as used in state variable description of system.
  - (b) Enumerate the merits of state variable description of control system. Consider the system described by transfer function.

$$G(s) = \frac{2(s+4)}{s(s+3)}$$

Obtain a state space representation.

(c) Write short note on 'Industrial communication system'.

- 3 (a) (i) Why is cascade controller called distribute decision maker?
  - (ii) Discuss the cascade control and feed forwar control system.
  - (b) Explain predictive control multivariable model.
  - (c) Explain the dynamic responses of variables for DMC control.
- 4 (a) Write a note on self tuning controllers.
  - (b) Explain the term 'Information preparation' as used i process modelling for computerised process control systems.
  - (c) What is PID controller? Derive the expression and give the utility of PID controller
- 5 Write short notes on any two of the following:
  - (a) Centralised and distributed control system.
  - (b) Thickness and flatness control system for metal rolling
  - (c) Microprocessor based temperature control system.