C 15934

(Pages : 2)

Name..................................
Reg. No...............................

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION MAY 2011

AI 04 801—COMPUTER AIDED PROCESS CONTROL

Time : Three Hours   Maximum : 100 Marks

Answer all questions.

1. (a) Discuss the role of DAC in a data acquisition system.

   (b) What is a transducer? How is it classified?

   (c) Explain the ladder programming of PLC.

   (d) Explain the advantages of PLC.

   (e) Explain the PROFIBUS system in DCSs.

   (f) Write a note on HART protocol.

   (g) Describe two defuzzification methods in fuzzy controllers.

   (h) What is AI? How is it applied in control system?

(8 × 5 = 40 marks)

2. (a) Explain a scheme for storing the output of a transducer into a computer memory.

                                                    (9 marks)

   (b) Describe the roles of data loggers and announciators.   (6 marks)

Or

   (c) What is supervisory control? Illustrate a typical application.   (9 marks)

   (d) Explain the features of RTOS used in data acquisition systems.   (6 marks)

3. (a) Explain the application of PLC in implementing a PID controller.   (9 marks)
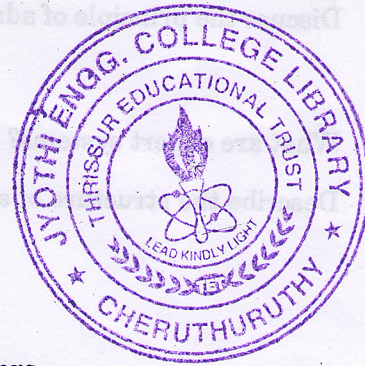
   (b) What is micro PLC?   (6 marks)

Or

   (c) How interlocks and alarms are designed in PLCs?   (8 marks)

   (d) Explain the analog interfacing of a typical PLC.   (7 marks)

Turn over

4. (a) With block diagram, explain the principle of a typical DCS. (9 marks)

(b) Explain the integration of DCS with PLC. (6 marks)

Or

(c) Describe DCS software configurations in detail. (7 marks)

(d) Describe a typical plant control using DCS. (8 marks)

5. (a) Write a note on model identification. Explain one approach in detail. (8 marks)

(b) Discuss the principle of adaptive control. Mention typical applications. (7 marks)

Or

(c) What are expert systems? How they are applied for control schemes? (9 marks)

(d) Describe the structure of a feed forward neural network. (6 marks)

(4 × 15 = 60 marks)