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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EIE) (2011 Onwards) (Sem.-7,8)

**ADVANCED PROCESS CONTROL**

Subject Code : EI-402

Paper ID : [A0376]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Q1. Answer briefly :**

- a) What is Ladder Logic Diagram?
- b) List the advantages and disadvantages of split range control.
- c) How will you classify data manipulation instructions?
- d) Draw the symbols of control valve and pump.
- e) Explain the functions of PLC input and output modules.
- f) Mention the two algorithms used in DDC software.
- g) What do you mean by multivariable control system?
- h) What is the purpose of reflux drum in distillation column?
- i) Name and draw the symbol for five different types of data compare instructions.
- j) What is meant by geographically centralized and geographically distributed control system?

### SECTION-B

- Q2. Explain the application of feed forward control and cascade control in distillation column.
- Q3. Explain in detail about communication facilities in distributed control system.
- Q4. Explain in detail about low and high level operator interfaces in DCS.
- Q5. Write a PLC program to convert °C temperature into °F.
- Q6. Distinguish between SCADA and DCS, Explain the hardware architecture of SCADA.

### SECTION-C

- Q7. Explain the basic architecture of PLC with neat block diagram, Also discuss the data transfer instructions and data compare instructions used in PLC.
- Q8.
  - a) What are the different types of displays in DCS? Explain with examples.
  - b) Explain the concept of ratio control with an example.
- Q9. Write short note on following :
  - a) Single and Multi-loop Systems
  - b) Dead Time Compensation Techniques