Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech.(Instrumentation & Control Engineering)
(Sem.–7)

ADVANCED PROCESS CONTROL

Subject Code : EI-402
M.Code : 58046

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

1. Answer briefly :

a) Define and explain the concept of feed forward control.

b) When the split range control is needed in a process?

c) What is distillation?

d) What is SCADA? Give **any four** editors available in SCADA package.

e) Define Process Variable, load variable and manipulated variable.

f) Distinguish PC and PLC.

g) Briefly explain about multivariable control.

h) What is ladder Logic Diagram?

i) Give advantages and applications of DCS.

j) List different types of test signals.

SECTION-B

2. What is cascade control? Explain need for cascade control with an example. When do you prefer cascade control mode?

3. Write a program that will turn a light on when a count reaches 20. The light is then to go off when a count of 30 is reached.

4. Distinguish between SCADA and DCS. Explain the hardware architecture of SCADA.

5. Explain with suitable examples, the difference between the interacting and non-interacting processes.

6. Explain the feed forward control with an example. Compare feed forward controller with feed back controller. Also bring out its merits and demerits.

SECTION-C

7. a) What is split range control? Describe a situation when you could use split range control.

   b) Explain the architecture of distributed control system.

8. a) Write a PLC program for one way traffic light control.

   b) Explain Retentive on delay timer instructions in a PLC with example.

9. Write short note on following :

   a) Single loop and multi loop control

   b) RGA method for minimizing interaction in heat exchanger

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.