# COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)
SHIVAJI NAGAR, PUNE - 411 005

## END Semester Examination

### (EE(DE)-14008)    Industrial Control Systems

Course: B.Tech                                 Branch: Electrical Engineering

Semester: Sem VII

Year:    2014-2015                                              Max.Marks:60

Duration: 3 Hours    Time:- 2.00 pm to 5.00 pm                  Date:  3 0 NOV 2014

**Instructions:**                      MIS No. [ ][ ][ ][ ][ ][ ][ ][ ]

1. All questions are compulsory.
2. Figures to the right indicate the full marks.
3. Mobile phones and programmable calculators are strictly prohibited.
4. Writing anything on question paper is not allowed.
5. Exchange/Sharing of anything likes stationery, calculator is not allowed.
6. Assume suitable data if necessary.
7. Write your MIS Number on Question Paper
8. Answer the questions in sequence.

Q.1  A  Draw the automation pyramid, identify the layers and explain each layer   05

briefly.

B  Explain the term auto tunning with proper example.                            05

Q.2     Answer the following questions

1. A thermistor is more suitable for measurement of temperature within   2.5

a small range. Justify this statement.

2. Why Bellows are commonly used in conjunction with a spring?           2.5

3. Why magnetic field applied to an electromagnetic flow meter is not   2.5

constant, but time varying?

4. Why should a temperature compensation scheme be provided in pH      2.5

measurement?

Q.3   Explain the comparison between feedback, feed forward and feed   10
      forward – feedback ratio control structure with example.

Q.4 A   Describe in details a count module and a loop controller module used   08
        with PLC

    B   Give two advantages and two disadvantages of using a function module   02
        for an automation application

Q.5 A   Explain the architecture of any TI DSP.                              05

    B   Draw and explain interfacing of stepper motor with DSP.             05

Q.6   Explain the pneumatic proportional controller in details.            10