2014
B.E. (Electrical and Electronics Engineering)
Sixth Semester
PE-EE-603: Programmable Logic Controllers

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt* five *questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I.  Answer the following:-

   a)  Draw a schematic of input modules of PLC?

   b)  How JUMP differs from SKIP and MCR functions.

   c)  List the examples of counter functions.

   d)  State any two features of DCS.

   e)  State I/O list for bottle filling application.                    (5x2)

## UNIT - I

II.  Explain, in detail, the internal structure of PLC. Discuss about the programming formats of PLC. Write the advantages and disadvantages of PLC (two each).   (10)

III.  What is a ladder diagram? Explain the ladder diagram and the sequence signals of a 4-bit shift register.                                              (10)

IV.  a) Draw equivalent ladder diagram for the instruction shown below:

   LD    X400

   OR    X402

   LD    X401

   OR    X403

   AND

   OUT   X430

   END

   b) Explain NOT gate and relay and PLC equivalents.                    (6,4)

P.T.O.

## UNIT - II

V.   a) Explain different types of timers with timing diagrams.

b) Draw a PLC wiring diagram for control of a lamp from two switches.     (6,4)

VI.   Develop a generalized DCS architecture for control of a plant. Explain each level in detail.     (10)

VII.   Write short notes on:

a)  SCADA

b)  Retentive timer     (2x5)

*x-x-x*