B.Tech. SEM -VII Electronics 2014 Course (CBCS) : WINTER - 2018

SUBJECT : PROGRAMMABLE LOGIC CONTROLLERS & APPLICATIONS

Day : Monday **W-2018-2555** Time : 02.30 PM TO 05.30 PM

Date : 26/11/2018 Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagram **WHEREVER** necessary.
4) Answers to both the sections should be written in **SEPARATE** answer book.
5) Assume suitable data if necessary.

Q.1 Define process control. Describe the following: **[10]**

a) PID control **b)** Cascade control

OR

Enumerate the functions and applications of PLC. What is the criteria for selecting a PLC?

Q.2 What is the difference between two-wire and three-wire transmitters? Justify with suitable applications. **[10]**

OR

Write short notes on:

a) Smart and intelligent transmitters

b) Necessity of Signal conditioning

Q.3 Draw the ladder diagram for the following: **[10]**

a) E and F are turned ON by a switch. When the stop switch is operated, E goes OFF immediately. F remains ON for another 7 seconds and then goes OFF.

b) When L is turned ON, M is to go ON 11 seconds later. M goes ON after 11 seconds, no matter how long L is turned ON.

OR

With suitable example explain PLC instructions used in the programming:

a) Two math instructions **c)** Two timer instructions

b) Two data flow instructions

Q.4 List the various programming methods used in PLC. With suitable example explain structured list programming. **[10]**

OR

What is HMI? Specify the advantages and applications of HMI.

Q.5 What is Distributed control system? Justify the significance with help of architecture of DCS. **[10]**

OR

Write short notes on:

a) MTU and its functions

b) RTU and its functions

Q.6 What is the role of NC and CNC machines in automation industries? List the applications of CNC machines in manufacturing. **[10]**

OR

What is networking of PLCs? What are the features of Profibus and control net?

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