USN | | | | | | | | | | |

10MT664

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Programmable Logic Controller

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. What is PLC? Write a technical definition of PLC. **(04 Marks)**

b. Write characteristics of PLC. **(06 Marks)**

c. Explain block diagram of PLC with neat sketch. **(10 Marks)**

2 a. Write equivalent ladder diagram for the following logical gates:
(i) AND gate.
(ii) OR gate.
(iii) NOT gate.
(iv) XOR gate. **(12 Marks)**

b. Design a 1 : 4 Demultiplexer using ladder logic. Assume the inputs are connected to I:0/1, control signals are connected to I:0/2 and I:0/3 and the output terminals are 0:0/1, 0:0/2, 0:0/3, 0:0/4 **(08 Marks)**

3 a. Explain the following:
(i) Timer ON delay.
(ii) Timer OFF delay **(10 Marks)**

b. Draw a ladder diagram for a box packaging system having the following conditions: Five boxes are stacked at a time and then bound with a wrapper. The input and output are as follows:
(i) Box present signal = I : 0/1
(ii) Wrapper machine relay = I : 0/1
(iii) Go to Step 1. **(10 Marks)**

4 a. Explain comparison instruction in detail. **(10 Marks)**

b. Explain program flow control instructions. **(10 Marks)**

PART – B

5 a. Explain the I/O system in detail for the following:
(i) Direct I/O
(ii) Parallel I/O system
(iii) Serial I/O system. **(10 Marks)**

b. Write short notes about power supply requirements. **(10 Marks)**

6 a. (i) Explain types of networking channel in detail.
(ii) Describe the concept present in IEEE488-bus. **(10 Marks)**

b. Explain the serial communication interface. **(10 Marks)**

7 a. Explain open system interconnection (OSI) network model. **(10 Marks)**

b. Explain controller area network (CAN). **(10 Marks)**

8 a. Draw the ladder diagram for simplified start up process of fuel circuit of a boilor. **(10 Marks)**

b. With the help of ladder diagram, explain starting and Tripping scheme of a FD Fan Motor. **(10 Marks)**

* * * * *