B.TECH SEM – VII (2007 COURSE) (ELECTRONICS ENGG.) : WINTER - 2017

SUBJECT : PROGRAMMABLE INDUSTRIAL CONTROLLERS

Day : **Wednesday** Time : **02.30 PM TO 05.30 PM**
Date : **17/01/2018** **W-2017-2580** Max. Marks : 80

N.B.:

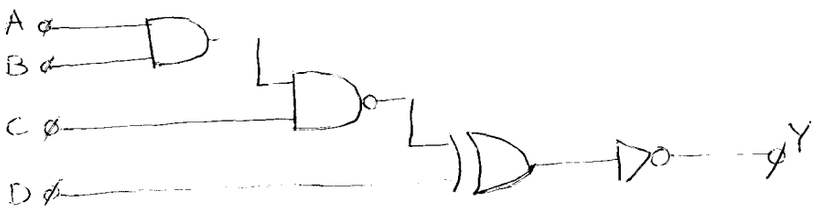
1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in the **SEPARATE** answer books.
3) Draw neat and labeled diagrams **WHEREVER** necessary.
4) Figures to the right indicate **FULL** marks.
5) Assume suitable data if necessary.

SECTION – I

Q.1 **a)** What is the difference between fix logic control and programmable logic control? **[06]**

b) Explain any two arithmetic instructions with proper example. **[04]**

c) Convert the following gate logic into ladder and write truth table for the same. **[04]**



Q.2 **a)** Compare Fixed PLC, modular PLC and PC. **[07]**

b) Draw electrical diagram and respective ladder logic for two types (Star-Delta and DQL) 3 phase induction motor starter considering all safety parameters. **[06]**

Q.3 **a)** What are the different types of counters explain with example? **[06]**

b) There is a cross conveyer line. **[07]**
Main conveyer has 3 cross conveyors.
When components on main conveyor are less than 100, the components are passed to conveyor 1.
When it is more than 100 and less than 200, conveyor 1 and 2 are on when more than 200, all three cross conveyor on.
If number of components on any cross conveyor is more than 100, raise alarm and stop line.

Q.4 **a)** Explain different types of timers with appropriate examples. **[06]**

b) Define: **[07]**
i) Sinking and sourcing input
ii) Sinking and sourcing output
iii) Compare instruction
iv) FIFO and LIFO

P.T.O.

SECTION – II

Q.5 **a)** What is meant by interposing relay? Explain. **[05]**

b) State the characteristics of Device Net. **[05]**

c) Mention different network components and give their uses. **[04]**

Q.6 **a)** There are three BCD inputs A, B and C. The output is to be A plus B minus C on a BCD display. Trace the computation for A, B and C of 425, 283 and 63 respectively. **[08]**

b) State the different types of analog modules. **[05]**

Q.7 **a)** Explain the operation of AS-I interface AS-I system. **[07]**

b) State the characteristics of CAM protocol. **[06]**

Q.8 Draw the PLC diagram and explain the operation of a two floor elevator system. **[13]**

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