R09

Code No: D0707, D4208, D5408

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH II - SEMESTER EXAMINATIONS, APRIL/MAY-2012
PROGRAMMABLE LOGIC CONTROLLERS AND THEIR APPLICATIONS
(COMMON TO ELECTRICAL POWER SYSTEMS, POWER AND INDUSTRIAL DRIVES, POWER ELECTRONICS AND ELECTRIC DRIVES)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1.a) Discuss about various programming equipments required for PLC programming.
b) Explain the construction of PLC ladder diagrams.

2.a) Discuss the importance of FAIL-SAFE switches.
b) There are three machines, each with its own start-stop buttons. Only one may run at a time. Construct a circuit with appropriate interlocking.

3.a) Explain the following
i) NAND gate and relay and PLC equivalents
ii) NOT gate and relay and PLC equivalents
b) Make a schematic of a ladder diagram for following sequence
> When SW1 is closed CR1 goes on
> After CR1 goes on, SW2 can turn CR2 on
> When CR2 goes on, PL1 goes off
(Use nine step planning sequence)

4. Discuss the following in detail
a) Holding registers
b) Input registers
c) Output registers.

5.a) How many configurations are there for PLC counter functions? Explain.
b) Discuss the application of a dual counter for parts o be counted on a conveyor belt. Assume required design considerations.

6.a) Explain the JUMP with NON-RETURN with an application.
b) Explain the FAL function of a PLC with a schematic of its operations.

7.a) What is the significance of Cascaded sequencers in PLC programming? Explain.
b) Explain operation of Industrial three axis robot control.

8. Write short notes on the following
a) Input, output devices connected to PLC
b) PLC analog signal processing
c) PID tuning.

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