www.FirstRanker.com

www.FirstRanker.com



Total No. of Pages : 02

Total No. of Questions : 09

FirstRanker.com

B.Tech.(EIE) (2011 & Onwards E-I) (Sem.–6) PROGRAMMABLE LOGIC CONTROLLERS & APPLICATIONS Subject Code : EI-310/DE-1.5 M.Code : 58040

Time: 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Q1 Answer briefly :

- a) Differentiate between a PLC and a personal computer.
- b) The programmable controller operates in a real time. What does this mean?
- c) What are the most important factors in selecting the size of a PLC?
- d) What is the function of watchdog timer in a PLC?
- e) Name any four input and output devices suitable for the input and the output modules.
- f) What determines the maximum speed of transitions that a PLC counter can count? Why?
- g) What are the disadvantages of a PLC?
- h) What is the function of the internal control relay?
- i) What is a drum sequencer?
- j) Why do PLCs execute memory checking routines?

1 M - 58040



www.FirstRanker.com

SECTION-B

- Q2. Explain the scan cycle of a PLC.
- Q3. Write the ladder programs for the NAND, NOR and XOR logic functions.
- Q4. Draw the schematic diagram of the dc input module and explain each section.
- Q5. Develop a sequencer control system to operate a basic two-axis robo.
- Q6. Explain the various timers and counters available in a PLC.

SECTION-C

- Q7 a) Explain the memory organization of a PLC. Name the different types of data files. 5
 - b) Make a sequential function chart and write a ladder program for following the operation of a start switch (S_1) , after which the tank is filled by opening a valve (V_1) until a level switch (L1) is triggered, then the tank is drained by opening drain valve (V_2) until level switch (L2) is triggered, then the sequence is repeated.
- Q8 a) Draw the schematic diagram of an ac output module. How the high rating devices are interfaced with the output module in a PLC. 5
 - b) Write a ladder program to implement the following process.

When the lights are turned off in a building, an exit door light is to remain on for an additional 2 min time and the parking lot lights are to remain on for an additional 3 min after the door light goes out. 5

- Q9. (a) How the analog devices are interfaced with a PLC?
 - (b) What do mean by latching? Draw the ladder program for the start stop of a motor. 2
 - (c) Explain how the proportional, integral and derivative control is implemented with a PLC. 5

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.

2	M -	58040	
---	-----	-------	--

3

www.FirstRanker.com