APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
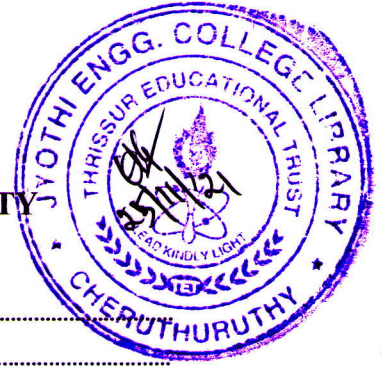## 08 PALAKKAD CLUSTER

Q. P. Code : IAR0821222-I   (Pages: 2)

SECOND SEMESTER M.TECH. DEGREE EXAMINATION JULY 2021

Branch: Mechanical Engineering   **Specialization: Industrial Automation and Robotics**

08ME6322 Programmable Logic Control and Computer Numerical Control

(Common to IAR)

Time: 2 hour 15 minutes   Max. Marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q. No.	Module 1	Marks
1. a	Discuss the need for controllers in industries. Briefly list the various advantages of controllers.	3
	Answer b or c	
b	Briefly describe the architecture of PLC with neat diagram.	6
c	Explain Synchronous and asynchronous logic controllers.	6

Q. No.	Module 2	Marks
2. a	Define PLC. List the different symbols used in ladder programming.	3
	Answer b or c	
b	With neat sketch explain Analog Input and Output modules used in PLC.	6
c	Explain any two programming language used in PLC.	6

Q. No.	Module 3	Marks
3. a	Explain Program and Data file Organization in PLC.	3

Answer b or c

b	Briefly explain types of Timers in PLC.	6
c	Explain the types of counters used in PLC with example.	6

Q. No.	Module 4	Marks
4. a	List the advantages of NC systems.	3

Answer b or c

b	Differentiate incremental and absolute systems in NC.	6
c	Explain the basic components of NC system.	6

Q. No.	Module 5	Marks
5. a	Define interpolator and its need in CNC.	4

Answer b or c

b	Explain the address format used in CNC.	8
c	Discuss the various control loops in CNC.	8

Q. No.	Module 6	Marks
6. a	Explain post processor in APT programming.	4

Answer b or c

b	With neat sketch briefly explain distributive numerical control.	8
c	Discuss in detail about geometric and motion instructions used in APT programs.	8