

APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY

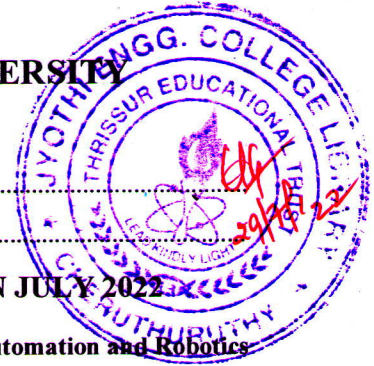
08 PALAKKAD CLUSTER

Q. P. Code: IAR0822222-I

(Pages: 2)

Name:

Reg. No:



SECOND SEMESTER M.TECH. DEGREE EXAMINATION JULY 2022

Branch: Mechanical Engineering

Specialization: Industrial Automation and Robotics

08ME6322 PROGRAMMABLE LOGIC CONTROL AND COMPUTER NUMERICAL CONTROL

Time: 3 Hours

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	Give a brief Introduction to logic circuits.	3
Answer b or c		
b	With neat sketches explain combinational and sequential controllers.	6
c	Briefly describe the architecture of PLC with neat diagram.	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	Describe in detail about different PLC programming Methods.	6
Q. No.	Module 3	Marks
3.a	Explain basic relay instructions in PLC.	3
Answer b or c		
b	Briefly explain types of Timers in PLC.	6
c	Explain different types of Counters in PLC with neat sketch.	6

Q. No. **Module 4** **Marks**

4.a List the advantages of CNC machines. **3**

Answer b or c

b Explain the basic components of NC system. **6**

c Differentiate incremental and absolute systems in NC. **6**

Q. No. **Module 5** **Marks**

5.a Differentiate linear and circular interpolator. **4**

Answer b or c

b Explain manual part programming with an example. **8**

c Discuss the various control loops in CNC. **8**

Q. No. **Module 6** **Marks**

6.a Discuss in detail about post processor statements. **4**

Answer b or c

b Explain geometric statement's in APT programming. **8**

c Discuss in detail about Direct Numerical Control. **8**