

**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER M.TECH DEGREE EXAMINATION, MARCH 2021**  
**Mechanical Engineering, M.Tech. Industrial Engineering**  
**07 ME 6411- INDUSTRIAL AUTOMATION**

Time: 3 hours

Max. Marks: 60

(Answer all six questions. Part 'a' of each question is compulsory.  
 Answer either part 'b' or part 'c' of each question)

<i><b>Q.No.</b></i>	<i><b>Module 1</b></i>	<i><b>Marks</b></i>
1a) Write a note on transfer line in an automated system		4
	<b>Answer b or c</b>	
b) What are the features of FMS? Explain.		5
c) Write a note on Cellular Manufacturing		5
<i><b>Q.no.</b></i>	<i><b>Module 2</b></i>	<i><b>Marks</b></i>
2a) Explain the working of a resolver		4
	<b>Answer b or c</b>	
b) Explain any two position sensor		5
c) Write a note on calibration of sensors		5
<i><b>Q.no.</b></i>	<i><b>Module 3</b></i>	<i><b>Marks</b></i>
3a) Explain the drive systems in CNC machines		4
	<b>Answer b or c</b>	
b) What is preloading? How it is done		5
c) Write a note on Material Handling Systems		5
<i><b>Q.no.</b></i>	<i><b>Module 4</b></i>	<i><b>Marks</b></i>
4a) Classify DCV what are its application		4
	<b>Answer b or c</b>	
b) Explain Karnaugh-Veitch map		5
c) Explain the working of pressure relief valves with neat sketch		5
<i><b>Q.no.</b></i>	<i><b>Module 5</b></i>	<i><b>Marks</b></i>
5a) Explain the basic structure of a PLC		5
	<b>Answer b or c</b>	
b) Write a note on PLC operating cycle		7
c) Explain the PLC ladder design for mixing of two fluids		7
<i><b>Q.no.</b></i>	<i><b>Module 6</b></i>	<i><b>Marks</b></i>
6a) list out various online inspection methods in automated system		5
	<b>Answer b or c</b>	
b) Explain any one non-contact inspection methods		7
c) Explain the constructional features of CMM		7