

Roll No.: .....

## SGT UNIVERSITY

### END TERM THEORY EXAMINATION JULY-2022

Faculty/College of Study:	Engineering & Technology	Year/Semester:	6 <sup>th</sup> Semester
Program:	B. Tech. (ME)	Duration:	03:00 Hrs.
Course/Subject:	Automation in Manufacturing	Maximum Marks:	60
Course/Subject Code:	13030601	Batch:	2019

#### **Instructions:-**

1. Write Your Roll No. on the QuestionPaper.
2. Candidate should ensure that they have been provided correct question paper. Complaint(s) in this regard, if any should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. All Questions are compulsory. Marks are indicated against eachquestion.
4. Illustrate your answer with diagram wherever required.

### SECTION-A

#### (Very Short Answer Type Questions)

Note: All Questions are compulsory: -

[12X1=12 Marks]

S. No.	Question	Marks Allotted
1	Mention different types of automation used in manufacturing industry.	1
2	Define Flexible automation.	1
3	Define product development cycle.	1
4	Define computer assisted part programming used in CNC machines.	1
5	Define DNC.	1
6	What are Preparatory codes?	1
7	Define part family.	1
8	Define Group Technology.	1
9	Define process planning.	1
10	Define CIM.	1
11	Define Artificial Intelligence used in CIM.	1
12	What is the role of CAD/CAM in CIM?	1

**SECTION-B**  
**(Short Answer Type Questions)**

**Note: All Questions are compulsory: -**

**[4X2=8 Marks]**

S. No.	Question	Marks Allotted
13	Mention different types of Manufacturing/production systems and type of automation being used by them.	2
14	Differentiate between NC and CNC.	2
15	Define CAPP.	2
16	What are the application benefits of CIM.	2

**SECTION-C**  
**(Descriptive Answer Type Questions)**

**Note: All Questions are compulsory: -**

**[4X4=16 Marks]**

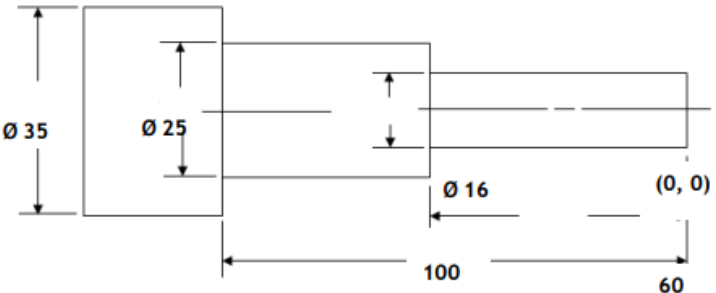
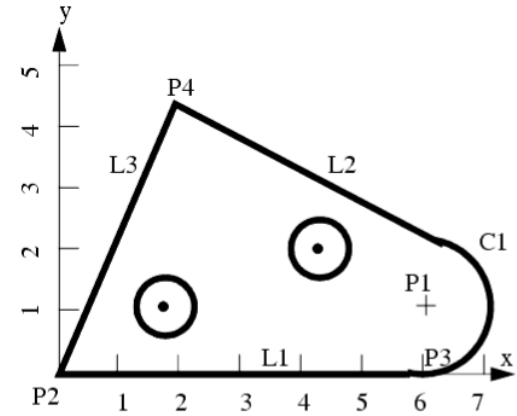
S. No.	Question	Marks Allotted
17	Define the following: <ol style="list-style-type: none"> <li>1. Work in Process</li> <li>2. Manufacturing Lead time</li> <li>3. Product Layout</li> <li>4. In line type of automated flow line</li> </ol> <p style="text-align: center;"><b>OR</b></p> Explain the steps involved in a product development cycle and briefly explain each.	4
18	Give the structural components of a CNC machine and briefly explain function of each component <p style="text-align: center;"><b>OR.</b></p> Differentiate between Manual Part Programming and Computer Assisted part programming using examples.	4
19	What do you mean by similarity in context of part family? Also mention and explain different types of similarities. <p style="text-align: center;"><b>OR</b></p> Explain the concept of Cellular Manufacturing, its features, applications and advantages in detail	4
20	Discuss the benefits of CIM. Also discuss the role of different technologies like AI, VR etc. in CIM.	4

**SECTION-D**

**(Long Answer Type Questions)**

**Note: All Questions are compulsory: -**

**[4X6=24 Marks]**

S. No.	Question	Marks Allotted
21	Explain the 10 strategies of Automation with examples.	6
22	<p>Write manual part program for turning operation as given in figure. Assume any data required and all dimensions are in mm.</p>  <p align="center"><b>OR</b></p> <p>Write APT geometry and motion statements for milling the given shape. Assume Any data required.</p> 	6
23	<p>Define Flexible Manufacturing System and its components. Also explain different types of Flexibilities associated with FMS.</p> <p align="center"><b>OR</b></p> <p>What is Group Technology, part classification and its types? Explain in brief about OPITZ part classification method.</p>	6
24	Describe the need for CIM and the issues addressed by CIM. Also summarize the various activities of a manufacturing plant which can be carried out through computer control.	6