

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020**

**Subject Code:2171903**

**Date:30/01/2021**

**Subject Name:Computer Aided Manufacturing**

**Time:10:30 AM TO 12:30 PM**

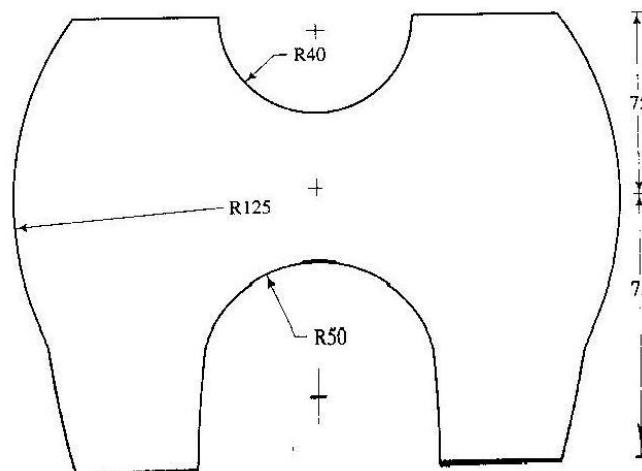
**Total Marks: 56**

**Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**MARKS**

- |            |  |           |
|------------|--|-----------|
| <b>Q.1</b> | (a) Explain the benefits of Computer Aided Manufacturing.  | <b>03</b> |
|            | (b) Draw and explain PLC architecture.   | <b>04</b> |
|            | (c) Explain the axes designation rules for machine tools employing rotating tools. Sketch a lathe and designate its axes.  | <b>07</b> |
| <b>Q.2</b> | (a) Explain the open loop and close loop control system.   | <b>03</b> |
|            | (b) What is tool compensation? Explain tool length and cutter radius compensation.   | <b>04</b> |
|            | (c) Explain different sensors used in Robot with sketch  | <b>07</b> |
| <b>Q.3</b> | (a) Explain incremental and absolute dimensioning with neat sketch   | <b>03</b> |
|            | (b) Explain the various elements of CIM.   | <b>04</b> |
|            | (c) Select a job of your choice and prepare a part program including a subroutine.   | <b>07</b> |
| <b>Q.4</b> | (a) Explain canned cycle with suitable examples.   | <b>03</b> |
|            | (b) Explain the conditions in which GT can be applied.   | <b>04</b> |
|            | (c) Write a manual part program for profile milling of the job as shown in fig 1. All dimensions are in mm. Assume suitable tools and cutting parameter for the manufacturing of the job.<br>Assume plate thickness to be 10mm | <b>07</b> |



**Fig.1.**

- |            |  |           |
|------------|--|-----------|
| <b>Q.5</b> | (a) Draw and explain CIM wheel                         | <b>03</b> |
|            | (b) Explain grippers in robots.                        | <b>04</b> |
|            | (c) Describe with neat sketch AS/RS system used in FMS | <b>07</b> |

- Q.6** (a) What is FMS? Explain the basic components of FMS. **03**  
(b) Discuss benefits of Group Technology. **04**  
(c) Explain different types of FMS layouts with neat diagram. **07**
- Q.7** (a) Automated guided vehicle associated with FMS **03**  
(b) What is the objective of MRP 1? List its benefits. **04**  
(c) Explain the different types of flexibilities in FMS. **07**
- Q.8** (a) Explain about Robot safety. **03**  
(b) Explain concept of JIT. List various advantages of JIT in manufacturing . **04**  
(c) What is computer integrated production management system? **07**  
Explain with neat flow chart.

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