

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021****Subject Code:3161917****Date:26/11/2021****Subject Name:Computer Aided Manufacturing****Time:02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain with neat sketches the following: (i) Machine zero (ii) Program zero	03
	(b) How does the structure of NC/CNC machine tools differ from conventional machine tools?	04
	(c) What is CIM? Explain Components of CIM.	07
Q.2	(a) Differentiate between canned cycle, subroutine and do loops.	03
	(b) Explain the PLC architecture using a diagram.	04
	(c) Define ROBOT. List the robot configurations and explain with neat sketch.	07
OR		
	(c) Explain briefly the constructional features ball screw with neat sketches & state its application.	07
Q.3	(a) Define PLC. Brief about the relay device components used in it.	03
	(b) Differentiate between Variant and Generative type CAPP .	04
	(c) Why is part classification and coding required in GT. Explain OPTIZ system of coding.	07
OR		
Q.3	(a) What are the major functions of process planning? What are the main problems associated with manual process planning?	03
	(b) Explain composite part method.	04
	(c) What is group technology? What are the advantage of GT in manufacturing ?	07
Q.4	(a) Explain the basic components of FMS.	03
	(b) Explain tool management system in FMS.	04
	(c) Write short note on Automatic Storage and Retrieval Systems and their applications areas in FMS.	07
OR		
Q.4	(a) Brief about functions of computers in FMS.	03
	(b) Explain different types of AGVs with their advantages and limitations.	04
	(c) Explain the types of flexibilities in FMS and discuss the factors on which these flexibilities depend.	07
Q.5	(a) How are sensors useful to robots?	03
	(b) State the points on role of manufacturing engineers in the CIM environment.	04
	(c) Differentiate between a SCARA and a gantry robot.	07

OR

- Q.5** (a) What are the different types of drives used in robots? **03**
(b) Explain expert system. **04**
(c) Explain in brief about the JIT philosophy. **07**
