

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VII (OLD) EXAMINATION – WINTER 2021****Subject Code:171903****Date:29/11/2021****Subject Name:Computer Integrated 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.

- Q.1** (a) Enlist various types of manufacturing systems. Define CIM and state its benefits. **07**
(b) Explain word address format. Differentiate between Modal and Non Modal codes used for CNC Part Programming. **07**
- Q.2** (a) List the different compensations used in CNC Program. What is cutter radius compensation? **07**
(b) How are the axes designated in CNC machine tools? Designate axes for CNC Lathe machine with neat sketch. State the rules followed by you in sequence. **07**
- OR**
- (b) Draw a CIM Wheel. Elaborate each domain functions. **07**
- Q.3** (a) Define Group Technology (GT). Draw Process and Product Layout. How are they different? State benefits of GT. **07**
(b) Name various structure of coding schemes. Explain OPTIZ coding system. **07**
- OR**
- Q.3** (a) What is Part family? Write five Design and manufacturing attributes used for part family formation. **07**
(b) What is CAPP? Differentiate variant and generative CAPP. **07**
- Q.4** (a) Which are the various components used for Flexible Manufacturing system (FMS)? Which are various general considerations for FMS? **07**
(b) Explain Programmable Logic Controllers (PLC) with neat sketch. State various applications of PLC. **07**
- OR**
- Q.4** (a) State needs of FMS. Explain following flexibilities used in FMS: **07**
i. Volume Flexibility
ii. Machine Flexibility
iii. Routing Flexibility
iv. Expansion Flexibility
(b) What is PPC? Explain Master Production Schedule (MPS). Draw a tree structure with suitable example. **07**
- Q.5** (a) Define Robot Anatomy. Explain any one industrial robot configuration. **07**
(b) Explain MRP-II (Manufacturing Resource Planning). Which is a subset of MRP-II? **07**
- OR**
- Q.5** (a) Discuss any five properties of Robotic sensors. Write any five robotics sensors usages. **07**
(b) Draw a block diagram of MRP-I. Which are the various outputs of MRP-I ? **07**
