

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER VIII- EXAMINATION- SUMMER 2020****Subject Code: 2180208****Date:28/10/2020****Subject Name: Computer Integrated Manufacturing in Automobile Industry****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.

- Q.1** (a) Explain the benefits of Computer Integrated Manufacturing. **03**
 (b) With the help of neat sketch, programmable controller architecture. **04**
 (c) Explain, in detail, MRP-I. **07**
- Q.2** (a) Compare NC and CNC machine tool systems. **03**
 (b) With the help of neat sketch, explain the concept & scope of CIM. **04**
 (c) Explain OPTIZ coding system, in detail. **07**
- OR**
- (c) What is tool compensation? Explain with neat sketch, tool length and cutter radius compensation. Enlist codes (at least two) used in both cases. **07**
- Q.3** (a) Classify CNC machine tools on the basis of: **03**
 (i) Type of tool motion control (ii) Programming methods (iii) Types of controllers.
 (b) Define Actuator used in Robot Technology. Enlist the types of actuators (Drives) for robots. **04**
 (c) What is an AGV (associated with FMS)? Explain different types of AGV. What are the benefits of using AGV? **07**
- OR**
- Q.3** (a) State the Laws of Robotics. **03**
 (b) Explain the steps of King's Algorithm. **04**
 (c) What are canned cycles? What is the difference between a canned cycle and subroutine? Discuss how a canned cycle can be useful in writing a part program. **07**
- Q.4** (a) Differentiate between product layout and group technology layout. **03**
 (b) What is Line balancing? Explain Largest candidate rule method of line balancing. **04**
 (c) Draw a neat sketch of recirculating ball screws. State the various effects of Preloading? State the advantages and disadvantages of ball screws. **07**
- OR**
- Q.4** (a) Define (i) Assembly line (ii) Automated Assembly line **03**
 (b) Explain tool supply system in FMS. **04**
 (c) Explain the concepts of Computer Vision and Machine Intelligence **07**
- Q.5** (a) Enlist different flexibilities associated with FMS. Explain any two in brief. **03**
 (b) Identify with neat sketch axis designation for CNC 3 Axes Center lathe. **04**
 (c) Discuss quantitative analysis of assembly line. **07**
- OR**
- Q.5** (a) State advantages of generative type CAPP. **03**
 (b) Write complete specifications of a typical Robot. **04**
 (c) Describe, with neat sketch, various layouts used in FMS. **07**
