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: (i) Type of tool motion control (ii) Programming methods (iii) Types of controllers.	**03**
	(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**

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