Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) - EXAMINATION – SUMMER 2017 Subject Code: 2172506 Date: 09/05/2017

Subject Code: 2172500 Subject Name: Flexible Manufacturing System(Department Elective - II) 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.

			MARKS
0.1		Short Questions	14
X 1-	1	List down the types of flexibilities associated with FMS.	
	2	List the Structural Components of FMS.	
	3	Sketch Robot centered FMS layout.	
	4	Importance of cleaning in FMS.	
	5	Importance of CMM in cellular Manufacturing systems.	
	6	Application of Machining Centre.	
	7	Application of Turning Centre.	
	8	FMS means	
	9	Objectives of FMS.	
	10	Classification of Cell .	
	11	Number of Phases required for FMS Implementation.	
	12	Obstacles for implementing GT.	
	13	Benefits of FMS.	
	14	Application of FMS in industry.	
Q.2	(a)	Enlist Principle objectives of FMS.	03
	(b)	Explain Automated Feature and Capabilities of Turning	04
		Centre.	
	(c)	Write a short note on Unattended Machining Centre.	07
		OR	
	(c)	Pallet, Part loading and programming options in	07
• •		Machining Centre.	
Q.3	(a)	Why is it important to know when to change out a tool on	03
		an automatic machine?	0.4
	(b)	Explain Automated Feature and Capabilities of	04
	(a)	Machining Centre.	07
	(C)	Emist six types of mechanical configuration of Civily that	07
		detail mentioning its merits demerits and applications	
		OR	
03	(a)	Differentiate: Traditional stand alone NC machine tool	03
X ••	(u)	with Integrated multi machine cell.	00
	(b)	Compare horizontal and vertical Machining centre with	04
	()	neat sketch.	
	(c)	In order to determine the number of vehicles required to	07
	~ /	meet the demand of particular automated guided vehicle	
		system, the system must be capable of making 40	
		deliveries per hour. The following are the data of	

performance characteristics of the system. Vehicle velocity: 150 m/min, Pick up time: 0.75 min

		Average distance travelled/delivery: 450 m	
		Drop off time: 0.75 min, Traffic factor: 0.9	
		Average distance traveling empty: 300 m	
		Determine the number of vehicles required to satisfy the	
		delivery demand.	
		Also determine handling system efficiency.	
Q.4	(a)	Enlist the factors that govern the FMS layouts.	03
	(b)	Classify and describes tool strategies in detail	04
	(c)	Explain Co-ordinate Measuring Machine with neat sketch	07
		OR	
Q.4	(a)	What types of flexibilities are offered by flexible	03
		manufacturing systems? Explain in brief the way in	
		which any of these flexibilities can be achieved.	
	(b)	Explain basic components and benefits of AS/RS.	04
	(c)	Explain AGV with its Guide path.	07
0.5	(\cdot)	Tallet the task that should be anticular a maletal an used	02
Q.5	(a)	Enlist the task that should be entirely completed or must	03
		have previously occurred to make sure that acceptance	
	(L)	lesting occurs on schedule.	04
	(D)	Justify the need of FMS.	04
	(C)	OP	07
05	(a)	UR Mention the reasons due to which group technology	02
Q.5	(a)	levent turns out to be more advantageous then process	03
		type levent	
	(b)	Explain hierarchy of CIM with respect to CIM	04
	(U)	tashnalagy	04
	(\mathbf{a})	Explain Quanting Corrousals and Automatic Work	07
	(0)	Changer	U/
		Changel.	
