Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER – I (New)– EXAMINATION – WINTER-2019

Subject Code: 3710810 **Date: 09-01-2020**

Subject Name: Design for Manufacturing and Assembly

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)**	What is design for manufacturing? Draw a flow chart for DFM process.	**07**
	(b)	What is meant by tolerance? How many types of tolerance are there? What are the types fit?	**07**
Q.2	**(a)**	Show relationship between attainable tolerance grades and different machining.	**07**
	(b)	How should one choose material? Write principal materials used to design mechanical components.	**07**
		OR	
	(b)	Which are the factors affecting form design? Discuss any two in detail.	**07**
Q.3	**(a)**	Write steps for design for an assembly process?	**07**
	(b)	Explain redesign of castings based on parting line considerations.	**07**
		OR	
Q.3	**(a)**	Enlist principles of lean manufacturing. What is DFA index?	**07**
	(b)	Explain design for machinability.	**07**
Q.4	**(a)**	What is Poka yoke? Mention Seven steps to be followed for Poka Yoke attainment.	**07**
	(b)	Explain in context of design for an environment: a) Design for Recyclability, b) Design for energy efficiency	**07**
		OR	
Q.4	**(a)**	Which are various factors for designing the welded structure?	**07**
	(b)	Explain three DFMA criteria for retaining components for redesign of a product	**07**
Q.5	**(a)**	What is concurrent engineering? Differentiate between traditional designs and manufacture Vs concurrent engineering.	**07**
	(b)	Explain in context of design for an environment: a) Design for remanufacture, b) Design to regulations and standards	**07**
		OR	
Q.5	**(a)**	Explain various design features to facilitate machining, Drills and Milling cutters.	**07**
	(b)	How one can design to minimize material usage? What should be taken care for design for disassembly?	**07**

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