GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3172320   **Date:07-01-2023**
Subject Name:Manufacturing of Molds for Plastic products.
Time:10:30 AM TO 01:00 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.**

			MARKS
Q.1	**(a)**	Give full form: (1) USM (2) AJM (3) ECDM	**03**
	(b)	Explain : Machining by Erosion	**04**
	(c)	Give detail classification of Machining Processes	**07**
Q.2	**(a)**	Explain: Various nonferrous materials used in plastics mold manufacturing.	**03**
	(b)	In which processes Non-metallic mold materials used for mold? List reasons for that.	**04**
	(c)	What is CNC machine? Which are the Advantages and disadvantages of CNC machines?	**07**
		OR	
	(c)	List the common steel used for mold construction. List the properties of steel required for mold construction.	**07**
Q.3	**(a)**	List the common alloying elements used in steel.	**03**
	(b)	Explain various qualities of Good Mold Design.	**04**
	(c)	What is heat treatment? Explain different surface hardening processes in brief.	**07**
		OR	
Q.3	**(a)**	Explain: Cryogenic Heat Treatment	**03**
	(b)	Explain: (1) Through Hardening (2) Nitriding	**04**
	(c)	Explain Chemical Etching and its application in mold manufacturing.	**07**
Q.4	**(a)**	Define Lathe. List type of Lathe.	**03**
	(b)	List the operation performed by CNC lathe with sketch.	**04**
	(c)	Explain EDM process and its working principle with neat sketch.	**07**
		OR	
Q.4	**(a)**	Explain Vacuum Hardening.	**03**
	(b)	What is Milling? Explain the role of CNC milling in mold manufacturing.	**04**
	(c)	Explain Mold assembly procedure and tools used for it.	**07**
Q.5	**(a)**	Explain the principle and operation of CMM	**03**
	(b)	Short Note: Vernier Calipers.	**04**
	(c)	Explain about Mold cost Estimation Process.	**07**
		OR	
Q.5	**(a)**	Explain about work holding devices for Lathe.	**03**
	(b)	Define Rapid Proto typing. List the basic process steps.	**04**
	(c)	List the various methods of Rapid Prototyping. Explain any two with neat sketch.	**07**

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