Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- V EXAMINATION-SUMMER 2023

Subject Code: 3151912 Date: 27/06/2023

Subject Name: Manufacturing Technology

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.**
4. **Simple and non-programmable scientific calculators are allowed**

			Marks
Q.1	**(a)**	Name the various patterns that are normally encountered in the foundry practices.	**03**
	(b)	Classify the manufacturing processes.	**04**
	(c)	Differentiate between hot working and cold working process in terms of working temperature, grain size developed, defects generation, residual stresses, dimensional tolerances, and mechanical properties.	**07**
Q.2	**(a)**	With the help of a neat sketch explain where sweep patterns are employed.	**03**
	(b)	Sketch different types of cores used in the foundry practice.	**04**
	(c)	Compare precision investment casting and shell moulding from the standpoint of process, product, and applications.	**07**
		OR	
	(c)	What are the typical situations in which the following casting processes are used? a. Precision-investment casting b. Shell-moulding c. True-centrifugal casting d. Pressure die-casting	**07**
Q.3	**(a)**	Draw a clean sketch of the oxidizing flame. Mention the materials that are welded with this flame.	**03**
	(b)	What is arc blow? Enlist some of the methods that are used to reduce the severity of the arc-blow problem.	**04**
	(c)	Describe the thermit welding process and also state its specific advantages and applications.	**07**
		OR	
Q.3	**(a)**	Describe the carburizing flame with a neat sketch. Mention the materials which use this flame for welding.	**03**
	(b)	Briefly explain the coding method used for the electrodes used in Manual metal-arc welding.	**04**
	(c)	Enlist the defects that are generally found in welding. Describe their cause and remedies.	**07**
Q.4	**(a)**	Give the three names of thermoplastic and thermosetting plastic materials.	**03**
	(b)	State forging applications. Draw the schematic of stress flow patterns of (a) cast (b) forged part	**04**

	(c)	Explain with sketches the difference between direct and indirect extrusion.	**07**

OR

Q.4	**(a)**	Name the processes used for making 1. Plastic bottle used for storing 1liter water 2. Plastic buckets 3. Plastic top cover of a plain cover copier	**03**
	(b)	Describe the closed impression die forging operation with sketches	**04**
	(c)	Explain briefly the following forging operations with neat sketches: (a) Coining operations: (b) Heading operation; (c) Punching operation (d) Blanking	**07**
Q.5	**(a)**	Compare various surface finishing processes in terms of tolerance and roughness.	**03**
	(b)	How does superfinishing differ from honing?	**04**
	(c)	Discuss the process of stretch blow-moulding with neat sketches.	**07**

OR

Q.5	**(a)**	Why do we require high-quality surface finish components?	**03**
	(b)	Differentiate between the lapping and polishing process in terms of finishing mechanism, surface produced, and metal removal rate,	**04**
	(c)	Describe the thermoforming process. What are its applications?	**07**