

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?	07
a. Precision-investment casting	
b. Shell-moulding	
c. True-centrifugal casting	
d. Pressure die-casting	
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 **03**

1. Plastic bottle used for storing 1 liter water
2. Plastic buckets
3. Plastic top cover of a plain cover copier

(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**