

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024

Subject Code: 3151912

Date: 21-05-2024

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) Explain Polarity in arc welding.	03
	(b) Differentiate between the super finishing processes of honing, buffing, and lapping.	04
	(c) Describe the casting defects in detail using a diagram.	07
Q.2	(a) Discuss the following casting-related terms: (i) Allowance for shrinkage (ii) Allowance for machining	03
	(b) Examine the differences between the cast and forged components with regard to defects directional characteristics, and grain size.	04
	(c) Classify the manufacturing Processes in detail.	07
	OR	
	(c) Explain Investment casting process	07
Q.3	(a) Discuss about the basic characteristics of plastics.	03
	(b) Derive the equation $l = \sqrt{R\Delta t}$ for the length of the deformation zone during the rolling operation.	04
	(c) Draw the three different kinds of flames that are utilized in oxy-acetylene welding. List each's purposes.	07
	OR	
Q.3	(a) Describe the coating's purpose for an arc welding electrode.	03
	(b) Explain the steps involved in drawing wire and tubes.	04
	(c) Give a brief explanation of the explosive welding process using a diagram and list the name of the solid-state welding procedure.	07
Q.4	(a) Why is a gating system's down sprue tapered?	03
	(b) Describe the roll pass procedure in full.	04
	(c) Illustrate Metal inert Gas welding with a neat sketch.	07
	OR	

Q.4	(a)	How does casting work? List the sand casting process step-by-step.	03
	(b)	Distinguish between the processes of extrusion, direct and indirect.	04
	(c)	Differentiate between the welding methods using a laser beam and plasma.	07
Q.5	(a)	Explain the characteristics and uses of any three thermosetting polymers.	03
	(b)	Explain Process of die casting using a line diagram.	04
	(c)	Describe the different kinds of forging defects and list the names of four products that are manufactured via forging.	07

OR

Q.5	(a)	Discuss the shearing, piercing, and blanking operations used in sheet metal work.	03
	(b)	Write the four examples of product manufactured using the casting process and list minimum ten tools used in manual sand-casting process.	04
	(c)	Discuss the plastic injection moulding process, including its working principle, benefits, drawbacks, and uses.	07
