Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–V (NEW) EXAMINATION – WINTER 2020

Subject Code:3151912 Date:01/02/2021

Subject Name:Manufacturing Technology

Time:10:30 AM TO 12:30 PM Total Marks: 56

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

		MARKS
Q.1	**(a)** Define the following terms as used in sand mould casting 1. Core 2. Core-Prints 3. Sprue	**03**
	(b) State the eight examples of products produced by foundry technology.	**04**
	(c) Explain various types of pattern allowances with a neat sketch.	**07**
Q.2	**(a)** Enlist the various type of patterns used in the casting process.	**03**
	(b) Differentiate between Pressure die casting and Permanent mould casting.	**04**
	(c) Describe the Shell mould casting process in terms of steps involved, its advantages and disadvantages with the help of a neat sketch.	**07**
Q.3	**(a)** State the purpose of coating on an arc welding electrode.	**03**
	(b) Sketch the four types of basic welding joints used in welding.	**04**
	(c) Discuss the TIG welding process setup with the help of a neat sketch also enlist advantages, disadvantages, and applications.	**07**
Q.4	**(a)** Two steel plates each 1 mm thick are spot welded at a current 5000 A. The current flow time is 0.1 s. Calculate the heat generated in the weld zone. The effective resistance in the operation is 200 μΩ.	**03**
	(b) Discuss the benefits of the use of inert gas in the TIG welding process.	**04**
	(c) Sketch the three types of flames used in the oxy-acetylene welding process. Give the uses of each.	**07**
Q.5	**(a)** Define the following terms 1. Blooms 2. Billets 3. Slabs	**03**
	(b) Compare the forged parts and cast parts in terms of grain size, directional properties, defects, and mechanical properties.	**04**
	(c) Distinguish between wire drawing and tube drawing with neat sketches.	**07**
Q.6	**(a)** Define the following terms: 1. Forward slip 2. Backward slip 3. Neutral point	**03**
	(b) For the rolling process, Derive the equation for the length of deformation zone $l = \sqrt{R\Delta t}$	**04**
	(c) Differentiate between Hot and Cold working processes.	**07**
Q.7	**(a)** State the advantages of various properties of plastic that ease various plastic manufacturing processes.	**03**
	(b) Define additives, Explain the function of plasticizers, catalysts, and initiators.	**04**

(c) Sketch and explain the injection moulding process. **07**

Q.8 **(a)** State the significance of the superfinishing process. **03**

(b) With the help of a neat diagram explain the superfinishing process. **04**

(c) Discuss the factors that need to be considered for selecting the manufacturing processes. **07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2021

Subject Code:3151912 Date:27/12/2021

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)**	Write name of different type of oxy-acetylene gas flame and explain any one of it.	**03**
	(b)	Give broad classification of various manufacturing processes.	**04**
	(c)	Write difference between Hot rolling and Cold rolling. Explain the terms: Bloom, Billet, Slab, Plate and sheet.	**07**
Q.2	**(a)**	What is Shrinkage allowance and Draft allowance?	**03**
	(b)	Explain properties of moulding sand.	**04**
	(c)	Write name of different die-casting methods. Explain any one with fig.	**07**
		OR	
	(c)	Write name of different types of patterns and Explain any three patterns with details.	**07**
Q.3	**(a)**	Write function of electrode coating.	**03**
	(b)	Explain welding power source characteristic.	**04**
	(c)	Describe Metal Inert Gas Arc welding also write advantage, Disadvantages and application of MIG Arc welding.	**07**
		OR	
Q.3	**(a)**	Explain polarity in arc welding.	**03**
	(b)	Explain principal of resistance welding with fig.	**04**
	(c)	Write the name of defects in welded joints. Explain any three with cases and remedies.	**07**
Q.4	**(a)**	Derive relationship between True Stress(ϭ) and Engineering stress(S). Ture Strain(ε) and Engineering strain(e).	**03**
	(b)	Differentiate direct and indirect Extrusion process.	**04**
	(c)	Enlist the various type of presses used in forging. Explain with neat sketch.	**07**
		OR	
Q.4	**(a)**	Explain sheet-metal working processes: Shearing, Piercing and Blanking.	**03**
	(b)	How do you compare forged components with cast components?	**04**
	(c)	Discuss wire drawing & Tube drawing.	**07**
Q.5	**(a)**	Name the different Thermosetting Resins and Thermoplastic Resins.	**03**
	(b)	Explain finishing process: 1. Honing 2. Lapping	**04**
	(c)	Explain injection moulding processes stating its advantages, limitations and application.	**07**

OR

Q.5	**(a)**	Differentiate Thermosetting plastics and Thermoplastics.	**03**
	(b)	Write short note on compression molding.	**04**
	(c)	Write short note on the following: (i) Grinding (ii) Chemical mechanical polishing.	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2021

Subject Code:3151912 Date:15/09/2021

Subject Name: Manufacturing Technology

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)**	Explain the following terms related to casting : (i) Shrinkage allowance (ii) Machining allowance	**03**
	(b)	Compare the lapping and honing super finishing processes.	**04**
	(c)	Classify the manufacturing process in detail.	**07**
Q.2	**(a)**	List the types of pattern and also list the materials from which patterns can be made.	**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)	Explain the casting defects in detail with diagram.	**07**
		OR	
	(c)	List the types of moulding sand and explain in detail all the properties of moulding sand to be considered for the casting process.	**07**
Q.3	**(a)**	Classify the welding process in detail.	**03**
	(b)	Explain the types and importance of polarity in electric arc welding process with diagram.	**04**
	(c)	List the name of solid state welding process and explain in detail explosive welding process with diagram.	**07**
		OR	
Q.3	**(a)**	List the various arc welding process.	**03**
	(b)	Compare the leftward and rightward welding technique with diagram.	**04**
	(c)	Explain in detail electroslag welding process and also write its merits, de-merits?	**07**
Q.4	**(a)**	Compare the hot working and cold working process and give example of each.	**03**
	(b)	Briefly explain the various methods available for breakdown passes in rolling and write the application of it.	**04**
	(c)	Explain the types of forging defects and write name of four products which are manufactured using the forging process.	**07**
		OR	
Q.4	**(a)**	Write the significance of recrystallisation temperature in metal forming process.	**03**
	(b)	Explain in detail the roll pass sequence.	**04**
	(c)	Classify the press tool operation and explain in detail the shearing operation with neat diagram.	**07**
Q.5	**(a)**	Explain any three thermosetting plastics with its properties and application.	**03**
	(b)	Explain the principle and working of atomic hydrogen welding with diagram.	**04**

	(c)	Explain with neat sketch the injection moulding process.	**07**
		OR	
Q.5	**(a)**	Write the difference between thermosetting and thermoplastics.	**03**
	(b)	Explain the submerged arc welding process with diagram.	**04**
	(c)	Explain in detail about the following process: (i) Compression moulding (ii) Transfer Moulding	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3151912 Date:09/06/2022

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)**	Define Manufacturing processes and enlist various manufacturing processes.	**03**
	(b)	Discuss the factors that need to be considered for selecting the manufacturing processes.	**04**
	(c)	Explain hot working and cold working process. State advantage and disadvantages of the processes.	**07**
Q.2	**(a)**	State the purpose of coating on an arc welding electrode.	**03**
	(b)	Explain the common welding defects by stating their causes and their remedies.	**04**
	(c)	Explain the working principles of Oxy-acetylene gas welding and gas cutting processes. Also differentiate between nozzles used for Oxy-acetylene gas welding and gas cutting process, using sketch.	**07**
		OR	
	(c)	Explain the working principle of Resistance welding. Differentiate between Spot and Seam Welding processes.	**07**
Q.3	**(a)**	Why a down sprue is made tapered in a gating system ?	**03**
	(b)	Explain various types of pattern allowances with a neat sketch.	**04**
	(c)	What is gating system? what are its function? state types of gate with its advantages.	**07**
		OR	
Q.3	**(a)**	Explain Cupola furnace with a neat sketch.	**03**
	(b)	What is pattern? List different patterns and explain each with a schematic diagram.	**04**
	(c)	Describe the Shell mould casting process in terms of steps involved, its advantages and disadvantages with the help of a neat sketch.	**07**
Q.4	**(a)**	Define Ingot, Bloom and Billet.	**03**
	(b)	Distinguish between wire drawing and tube drawing with neat sketches.	**04**
	(c)	Distinguish between thermoforming process and extrusion process for plastics.	**07**
		OR	
Q.4	**(a)**	Explain in brief Strain Hardening.	**03**
	(b)	Distinguish between TIG and MIG welding processes.	**04**

	(c)	Enlist types of super finishing processes. Discuss the selection criteria for appropriate super finishing process.	**07**
Q.5	**(a)**	Define Forward slip, Backward slip and Neutral point for Rolling process.	**03**
	(b)	Explain calendaring process.	**04**
	(c)	Explain Injection moulding process for plastic, by stating its principle of operation, advantages, limitation and applications.	**07**

OR

Q.5	**(a)**	With a neat sketch explain the piercing and blanking processes.	**03**
	(b)	State the significance of the superfinishing process.	**04**
	(c)	Explain Burnishing process with a neat sketch.	**07**

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