

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	03
	1. Core	
	2. Core-Prints	
	3. Sprue	
	(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 $\mu\Omega$.	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	03
	1. Blooms	
	2. Billets	
	3. Slabs	
	(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:	03
	1. Forward slip	
	2. Backward slip	
	3. Neutral point	
	(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**

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(σ) and Engineering stress(S). True 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

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

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: **07**

(i) Compression moulding (ii) Transfer Moulding

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**
