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**

****