

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VI (New) EXAMINATION – WINTER 2019

Subject Code: 2162506

Date: 04/12/2019

Subject Name: Metal Joining 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.

		MARKS
Q.1	(a) Compare the high pressure gas welding and low pressure gas welding.	03
	(b) Compare the welding process with casting and riveting.	04
	Classify Welding processes based on following criteria. (1) Metallurgical aspect, (2) Based on Automation adopted (3) Based on types of energy used (4) Based on types of principle (5) Based on type of shielding.	07
Q.2	(a) List out coating ingredient of electrode and their function.	03
	(b) Write a short note on flame adjustment.	04
	(c) Differentiate in detail between Gas welding and Gas cutting. Draw various types of Flame used in gas welding.	07
	OR	
	(c) Discuss the importance of pre and post weld heat treatment? Explain any one method of PWHT.	07
Q.3	(a) Define following terms: - Heat, Current, and Resistance.	03
	(b) Draw following welding symbol: - fillet, double – U butt, double bevel butt, spot, projection, stud, lap joint and bevel joint.	04
	(c) Differentiate between Electro slag and Electro gas welding in detail with sketch.	07
	OR	
Q.3	(a) Explain the term “Heat Affected Zone (HAZ)”.	03
	(b) Write a short note on welding fluxes.	04
	(c) Discuss various modes of metal transfer in welding processes with neat sketch.	07
Q.4	(a) Differentiate between soldering and brazing.	03
	(b) Write the causes and remedies for following welding defects:- incomplete penetration, porosity and crack.	04
	(c) Explain coding and classification of mild steel and alloy steel electrodes as per Indian and American system	07
	OR	
Q.4	(a) Write a short note on welding fluxes.	03
	(b) Write the causes and remedies for following welding defects: - Distortion and incomplete fusion.	04
	(c) Write short note on thermit welding and friction welding.	07
Q.5	(a) How TIG and MIG are similar to each other.	03
	(b) Draw sketch of Weld bead and show penetration, reinforcement, width, throat, leg on it.	04
	(c) Write a short note on various NDT process.	07
	OR	
Q.5	(a) Compare consumable and non-consumable electrode.	03
	(b) Write a short note on Arc initiation and Arc maintenance.	04
	(c) What are the safety recommendation for installation and operation of arc welding equipment?	07
