

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2162506

Date:28/04/2018

Subject Name: Metal Joining 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.

- Q.1** (a) Write the advantages of welding process over the riveting process. **03**
(b) Define following terms:-Heat, Time (T), Resistances (R), and Electrode Pressure. **04**
(c) Write arc initiation and arc maintenance method used in submerged arc welding and manual metal arc welding. **07**
- Q.2** (a) Write a function of coating on electrode. **03**
(b) What precautions must be taken during welding of dissimilar metals? **04**
(c) Discuss the importance of pre and post weld heat treatment? Explain any one method of PWHT. **07**
- OR**
- (c) Explain Local Coalescence in Welding Process. 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.3** (a) Explain the principal operation of gas welding. **03**
(b) Draw Weld bead and show penetration, reinforcement, width, throat, leg on it. **04**
(c) What is crater? Explain remedies of crater cracking. **07**
- OR**
- Q.3** (a) Define: - Brazing, Soldering, Welding. **03**
(b) Compare consumable and non-consumable electrode. **04**
(c) What are the selection factors for arc welding electrodes? **07**
- Q.4** (a) Write the causes and remedies for following welding defects: - Slag inclusion, Incomplete penetration, Porosity. **03**
(b) Explain the different types of flames. **04**
(c) Discuss importance of heat balance in welding process considering different type of joints, thickness and materials. What are its effects on quality of weld? **07**
- OR**
- Q.4** (a) Write the causes and remedies for following welding defects: -cold crack, Spatter, Distortion. **03**
(b) Discuss Non-transferred arc process and transferred arc process of plasma arc welding. **04**
(c) Write short note on thermit welding and friction welding. **07**
- Q.5** (a) Write a short note on weldability. **03**
(b) Draw the fundamental types of Joints. **04**
(c) Differentiate between Electro slag and Electro gas welding in detail with sketch. **07**
- OR**
- Q.5** (a) Draw any six welding symbol with name. **03**
(b) Write a short note on welding fluxes. **04**
(c) Explain coding and classification of mild steel and alloy steel electrodes as per Indian and American system **07**

***** BEST OF LUCK *****