

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2016****Subject Code:2162506****Date:06/05/2016****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) Explain Local Coalescence in Welding Process. Classify Welding processes based on following criteria **07**  
(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
- (b) Write merits, demerits and application of Welding processes. **07**
- Q.2** (a) Differentiate in detail between Gas welding and Gas cutting. Draw various types of Flame used in gas welding. **07**
- (b) Draw Weld bead and show penetration, reinforcement, width, throat, leg on it. How welding speed and current on this bead parameter. **07**
- OR**
- (b) Differentiate between Electro slag and Electro gas welding in detail with sketch. **07**
- Q.3** (a) Write short note on TIG welding process. How TIG and MIG are similar to each other. **07**
- (b) Discuss difference in detail between AC and DC power source characteristic. **07**
- OR**
- Q.3** (a) Write Arc initiation and Arc maintenance method used in submerged arc welding and manual metal arc welding. **07**
- (b) Write coding system used for electrode and explain it in detail. How electrode coating is helpful in welding? **07**
- Q.4** (a) Write short note on thermit welding and friction welding. **07**
- (b) Write techniques used for identification of welding defects. Draw and write possible cause and remedies for porosity, crack, distortion and incomplete fusion. **07**
- OR**
- Q.4** (a) Draw different types of joints and welds with weld symbols. **07**
- (b) Differentiate between resistance seam welding and spot welding. **07**  
Differentiate between resistance upset welding, flash Butt welding, percussion Welding.
- Q.5** (a) Discuss various modes of metal transfer in welding processes with neat sketch. **07**
- (b) Differentiate in detail between soldering, brazing and braze welding. **07**
- OR**
- Q.5** (a) Write short note on flux cored arc welding process. **07**
- (b) Discuss importance of heat balance in welding process considering different type of joints, thickness and materials. How it affects on quality of weld? **07**

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