

**GUJARAT TECHNOLOGICAL UNIVERSITY****B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 172103****Date: 01/01/2013****Subject Name: Metal Joining Processes****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**Q.1 (a)** In manual metal arc welding how do you (i) grip the electrode, (ii) strike the arc, (iii) maintain the arc, (iv) Break the arc, & (v) re-strike the arc to continue the welding **07**

**(b)** What equipments do we need for shield-metal arc welding? What is the function of the flux coating on the electrodes? **07**

**Q.2 (a)** What are the power requirements for TIG welding? Explain the different types of torches used in TIG **07**

**(b)** Explain the process of MIG welding. What metals can be welded by MIG ? **07**

**OR**

**(b)** Explain the plasma welding process, its application, merits & de-merits **07**

**Q.3 (a)** Discuss different Metal joining processes. Give brief introduction of (i) Resistance welding, (ii) Thermit welding, (iii) Submerge arc welding. **07**

**(b)** What is weldability? Explain the weldability of stainless steel & weldability of cast iron. **07**

**OR**

**Q.3 (a)** What are the Types of joints in welding? What are the different modes of edge preparation? **07**

**(b)** What are the main welding variables ? what tests would you perform to assure the quality of weld ? **07**

**Q.4 (a)** i. Define Resistance welding & explain the two cycles in resistance welding. **07**

ii. Explain seam welding process.

**(b)** Explain various defects in welding, their causes & remedies for eliminate the defects. **07**

**OR**

**Q.4 (a)** What are the components of a Gas welding system ? What are the main variables of Gas welding? **07**

**(b)** Differentiate between Brazing & soldering. What are the various brazing filler metals & fluxes used in different brazing process. **07**

**Q.5 (a)** i. Why is vacuum chamber is used in Electron beam welding? What are the power source requirements for electron beam welding. **07**

ii What are the two types of electron beam guns ?

**(b)** Define Ultra sonic welding & cold welding processes. Give their specific application & De- merits **07**

**OR**

**Q.5 (a)** Is welder qualification is necessary ? justify giving examples. How do you establish correct welding procedure & do inspection during welding process ? **07**

**(b)** Explain with neat sketch different flames in gas welding & cutting. **07**

\*\*\*\*\*