GUJARAT TECHNOLOGICAL UNIVERSITY B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 172103

Subject Name: Metal Joining Processes

Time: 10.30 am - 01.00 pm

Total Marks: 70

Date: 01/01/2013

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 07 the arc, (iii) maintain the arc,(iv) Break the arc , & (v) re-strike the arc to continue the welding
 - (b) What equipments do we need for shield-metal arc welding? What is the **07** function of the flux coating on the electrodes?
- Q.2 (a) What are the power requirements for TIG welding? Explain the different 07 types of torches used in TIG
 - (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) 07 Resistance welding, (ii) Thermit welding, (iii) Submerge arc welding.
 - (b) What is weldability? Explain the weldability of stainless steel & 07 weldability of cast iron.

OR

- Q.3 (a) What are the Types of joints in welding? What are the different modes of 07 edge preparation?
 - (b) What are the main welding variables ? what tests would you perform to 07 assure the quality of weld ?
- Q.4 (a) i. Define Resistance welding & explain the two cycles in resistance welding.

ii. Explain seam welding process.

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

OR

- Q.4 (a) What are the components of a Gas welding system ? What are the main 07 variables of Gas welding?
 - (b) Differentiate between Brazing & soldering. What are the various brazing 07 filler metals & fluxes used in different brazing process.
- Q.5 (a) i. Why is vacuum chamber is used in Electron beam welding? What are the power source requirements for electron beam welding.
 What are the true of electron beam source?

ii What are the two types of electron beam guns ?

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

OR

- Q.5 (a) Is welder qualification is necessary ? justify giving examples. How do you or establish correct welding procedure & do inspection during welding process ?
 - (b) Explain with neat sketch different flames in gas welding & cutting. 07

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