

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering - SEMESTER – V • EXAMINATION – WINTER 2012

Subject code: 355503**Date: 27/12/2012****Subject Name: Welding Metallurgy****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.
4. English version is considered to be Authentic.

- Q.1** (a) Draw neat sketch of Iron Carbon Diagram & correlate in the field of welding metallurgy. **07**
(b) Define the term “Weld ability” and state the importance of weld ability in a fabrication industry. **07**
- Q.2** (a) Explain briefly the Gas-Metal reactions in welding of carbon steel. **07**
(b) Explain briefly the factors affecting weld ability of materials. **07**
OR
(b) Draw neat sketch of Time-Temperature-Transformation (TTT) diagram label its parts and explain briefly. **07**
- Q.3** (a) State the causes and remedies of Hydrogen- induced cracking. **07**
(b) Give classification of stainless steel & explain role of schaffler & Delong diagram. **07**
OR
- Q.3** (a) Explain briefly causes and remedies of IGC in SS 316. **07**
(b) Differentiate between materials SS-304 and SS-316. **07**
- Q.4** (a) Why Titanium welding needs high precautions during welding ? **07**
(b) State the effect of alloying elements properties of carbon steel. **07**
OR
- Q. 4** (a) State the types of Cast- Iron and discuss the weld ability of cast iron. **07**
(b) Define the term essential variable, non essential variable, supplementary essential variable, WPS, WPQ, PQR & P- number. **07**
- Q.5** (a) Prepare WPS with following data **07**
Material = SA 515 GR 70, Position = 1G, Electrode = E 7018
Welding Process = SMAW
(b) Discuss the problems and remedies of welding of dissimilar metals such as SS-304 and SA-515 Gr.-60. **07**
OR
- Q.5** (a) State the types of Aluminum alloys and discuss the weld ability of Aluminum. **07**
(b) What do you understand by the term “Post weld “Heat treatment as UCS-56 of ASME Sec-VIII Div. 1. **07**
