

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering Semester –V Examination Dec'11- Jan'12

Subject code: 355503**Date: 26/12/2011****Subject Name: Welding Metallurgy****Time: 10.30 am – 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.
4. English version is considered Authentic.

- Q.1** (a) State characteristics of good welding engineers for welding metallurgy department. **07**
(b) Draw neat sketch of Iron Carbon diagram & correlate in the field of welding metallurgy. **07**
- Q.2** (a) Define the term weld ability. State factors affecting of weld ability of metal through QW 402 to QW 410. **07**
(b) Explain T.T.T. diagram with neat sketch. Explain its application in welding metallurgy. **07**
- OR**
- Q.3** (b) Explain briefly gas metal reaction and slag metal reaction. **07**
(a) Give classification of stainless steel & explain role of schaffler & Delong diagram. **07**
(b) Explain hydrogen induced crack and hydrogen embitterment. **07**
- OR**
- Q.3** (a) Explain briefly causes and remedies of IGC in SS 316 **07**
(b) State sources of gases and explain effect of Oxygen & Nitrogen in weld. **07**
- Q.4** (a) Explain causes & remedies of weld porosity along the reaction. **07**
(b) Discuss procedural steps & welding metallurgy of gray cast iron. **07**
- OR**
- Q. 4** (a) Explain weld ability of aluminum. **07**
(b) Write seven alternatives to control of residual welding stresses. **07**
- Q.5** (a) Define the term essential variable, non essential variable, supplementary essential variable, WPS, WPQ, PQR & P- number **07**
(b) Discuss metallurgy of dissimilar metal welding & explain role of SS309 electrode. **07**
- OR**
- Q.5** (a) Prepare WPS with following data **07**
Material = SA 515 GR 70, Position = 1G, Electrode = E 7018
Welding Process = SMAW
(b) Write brief note on ASME SEC. – IX & ASME SEC. II – A,B,C,D **07**
