

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-VI Examination-Nov/Dec-2011

Subject code: 162105

Date: 30/11/2011

Subject Name: Electrometallurgy & Corrosion

Time: 10.30 am -1.00 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) State faraday's laws of electrolysis. Explain terms anode, cathode and electrolyte in an electrochemical cell. **07**
(b) Write short note on polarisation. **07**

- Q.2** (a) Compare emf series and galvanic series. **07**
(b) Explain passivity and transpassivity with suitable diagram and their effect on corrosion. **07**

OR

- (b) Define corrosion. Explain that corrosion is reverse of extraction of metal with suitable example. **07**

- Q.3** (a) Explain pilling bedworth ratio and give its application. **07**
(b) Write short note on methods to protect high temperature corrosion. **07**

OR

- Q.3** (a) Explain crevice corrosion in 18-8 stainless steel and ways to protect it. **07**
(b) Discuss galvanic corrosion in detail with its beneficial effect. **07**

- Q.4** (a) Write short note on selective leaching. **07**
(b) Discuss intergranular corrosion and ways to prevent it. **07**

OR

- Q.4** (a) Write short note on galvanizing. **07**
(b) Explain how anodizing can help to prevent corrosion. **07**

- Q.5** (a) Discuss protection of corrosion by suitable design and inhibition. **07**
(b) Write short note on cathodic protection. **07**

OR

- Q.5** (a) Explain the effect of metallurgical variables, temperature and velocity on corrosion. **07**
(b) Write short note on stress cracking corrosion. **07**
