

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 152105

Date: 15/05/2017

Subject Name: Industrial Corrosion & its Prevention

Time: 02:30 PM to 05:00 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) Discuss about high temperature corrosion and mention the Protection methods. **07**
(b) What is selective leaching? Discuss its causes and possible remedial measures. **07**
- Q.2** (a) Explain electrochemical theory of wet corrosion with suitable example. **07**
(b) Discuss about galvanic series. Give limitations. **07**
- OR**
- (b) Derive Nernst equation for electrode potential. Mention applications. **07**
- Q.3** (a) Explain tafel extrapolation method for corrosion rate measurement. **07**
(b) Describe the ASTM G 48 test for pitting corrosion testing. **07**
- OR**
- Q.3** (a) Differentiate between concentration polarization and activation polarization. **07**
(b) Explain Wet loss method for corrosion rate measurement. **07**
- Q.4** (a) Discuss causes, mechanism and way of prevention of crevice corrosion. **07**
(b) Discuss effect of water quality on corrosion rate in thermal power plants. **07**
- OR**
- Q.4** (a) Discuss causes, mechanism and way of prevention of Inter granular corrosion. **07**
(b) Explain about cooling water system. **07**
- Q.5** (a) What is electroplating? Describe important steps involved in electroplating. **07**
(b) Compare cathodic protection method with anodic protection method to combat corrosion. **07**
- OR**
- Q.5** (a) Explain the difference between corrosion protection by noble coating and active coating with suitable examples. **07**
(b) With the help of suitable examples explain how the proper material selection is helpful in corrosion control. **07**
