

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VIII (NEW) EXAMINATION – WINTER 2020****Subject Code:2182112****Date:21/01/2021****Subject Name:Industrial Corrosion, Testing, Prevention & Control****Time:02:00 PM TO 04:00 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Write the importance of corrosion prevention.	03
	(b) Define corrosion. List the types of corrosion.	04
	(c) Discuss the importance of corrosion study of metals and alloys based on economic aspects.	07
Q.2	(a) Enlist different methods of corrosion prevention.	03
	(b) What is e.m.f. series? Discuss its applicability and limitations in corrosion studies.	04
	(c) Explain in detail about stress corrosion and corrosion fatigue.	07
Q.3	(a) List major forms of corrosion may occur in oil and gas production industries.	03
	(b) Justify the role of design aspects in corrosion protection.	04
	(c) Identify the causes and explain investigation methodology used to investigate the types of corrosion failures in power industries. Suggest remedies.	07
Q.4	(a) Justify the role of material selection in corrosion protection.	03
	(b) Explain the failures due to embrittlement in boiler tubes along with the remedial measures.	04
	(c) Identify the causes and explain investigation methodology used to investigate the types of corrosion failures in petrochemical industries. Suggest remedies.	07
Q.5	(a) What is galvanic series? Discuss its applicability and limitations in corrosion studies.	03
	(b) Discuss corrosive environment in fertilizer industries.	04
	(c) Identify the causes and explain investigation methodology used to investigate the types of corrosion failures in ship building industries. Suggest remedies.	07
Q.6	(a) With a suitable diagram, explain galvanic cell. Write the equations involved.	03
	(b) Suggest suitable corrosion resistant material for hull of boat.	04

- (c) Identify the causes and explain investigation methodology used to investigate the types of corrosion failures in fertilizer industries. Suggest remedies. **07**
- Q.7**
- (a) Explain role of ductile brittle transition temperature in corrosion failures. **03**
 - (b) Discuss corrosion resistant materials for marine industries. **04**
 - (c) Identify the causes and explain investigation methodology used to investigate the types of corrosion failures in automobile industries. Suggest remedies. **07**
- Q.8**
- (a) What is dealloying in corrosion? **03**
 - (b) Suggest preventive measures for corrosion failures in helical compression spring of automobile suspension system. **04**
 - (c) Write a short note on ASTM standards for corrosion testing. **07**

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