

Registration No. :

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Total number of printed pages – 2

B. Tech
PCMT 4403

Seventh Semester (Special) Examination – 2013
CORROSION AND DEGRADATION OF MATERIALS

BRANCH : MME

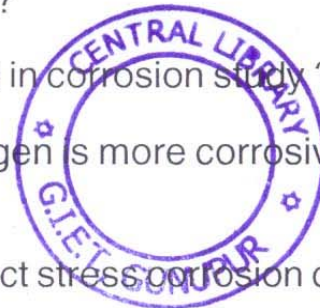
QUESTION CODE : D 483

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory and any **five** from the rest.
The figures in the right-hand margin indicate marks.*

1. Answer the following questions : 2×10
- Define passivity with suitable diagram?
 - What is galvanic series ? How it is used in corrosion study ?
 - Acid solution containing dissolved oxygen is more corrosive than air free acid explain.
 - Write the metallurgical factor which affect stress corrosion cracking.
 - Write electro deposition process with example.
 - Why hydrogen blistering occurs ?
 - How pH effect on erosion corrosion of steel ?
 - Discuss briefly the factors affecting choice of an engineering material.
 - Differentiate between oxidation and corrosion.
 - What is weld decay where it occurs ?
2. (a) Discuss the effect of metallurgical structure on corrosion by explaining ring worm corrosion. 5
- (b) Explain briefly oxide defect structure with suitable example. 5



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3. (a) Briefly discuss corrosion testing methods. 5
(b) Describe Tafel plot with neat sketch. 5
4. (a) Differentiate between activation and concentration polarization. 5
(b) With neat sketch describe pourbaix diagram 5
5. (a) What is stray current effect ? Explain with example. 5
(b) Discuss briefly the factors affecting choice of an engineering material. 5
6. (a) Write about catastrophic oxidation. 5
(b) How erosion corrosion occurs and write the mechanism and preventive measures ? 5
7. (a) What is inhibitor ? Classify and describe about it. 5
(b) What is cathodic protection ? Differentiate between anodic and cathodic protection. 5
8. Write short notes on any **two** of the following. 5x2
(a) Inter granular corrosion
(b) Knife line attack
(c) Wagner-hauffe valance approach
(d) Oxidation kinetics:

