Registration No : | | | | | | | | | | |

Total number of pages : 01 **B.Tech**

PCMT4403

7th Semester Back Examination 2018-19

CORROSION AND DEGRADATION OF MATERIALS

BRANCH : CHEM, METTA, MME, PLASTIC

Time : 3 Hours

Max Marks : 70

Q.CODE : E347

Answer Question No. 1 which is compulsory and any FIVE from the rest.

The figures in the right-hand margin indicate marks.

Answer all parts of a question at a place.

Q1. **Answer the following questions :** **(2 x 10)**

a) What is the basic difference between EMF series and galvanic series?

b) Why corrosion occurs at region of lower concentration in concentration cell?

c) What do you mean by passivity?

d) What is selective leaching?

e) What is galvanic effect?

f) Write an expression for corrosion rate.

g) Justify the statement "*small anode to cathode ratio, corrosion rate is high*".

h) What is Pilling-Bedworthrule?

i) Why pits are growing in gravity direction?

j) Write an expression for corrosion rate.

Q2. Explain inter-granular corrosion of stainless steels and prevention methods. **(10)**

Q3. What is sensitization? Explain the mechanism of sensitization with suitable example and mention some prevention methods. **(10)**

Q4. Describe the activation polarization and concentration polarization. **(10)**

Q5. Explain the mechanism of by-metallic corrosion. Suggest suitable prevention methods. **(10)**

Q6. Explain the mechanism of auto-catalytic process of pitting corrosion and factors affecting on it. **(10)**

Q7. What is stress corrosion cracking? Explain the mechanism and prevention methods with suitable examples. **(10)**

Q8. **Write short notes on any TWO :** **(5 x 2)**

a) Anodic protection

b) Pour box diagram

c) Cathodic inhibitor and anodic inhibitors.

d) Chemical degradation of ceramics and plastics