

Total No. of Questions : 10]

SEAT No. :

**P3993**

**[4959]-1176**

[Total No. of Pages : 2

**B.E. (Chemical)**

**CORROSION ENGINEERING**

**(2012 Course) (Elective - I) (409344C)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to candidates:*

- 1) *Answer Q. No 1 or 2, Q. No 3 or 4, Q. No 5 or 6 and Q. No 7 or 8, Q. No 9 or 10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of logarithmic tables slide ruler, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) *Assume suitable data, if necessary.*

**Q1) a)** Define the term corrosion and differentiate it from erosion. **[5]**

b) How much rust ( $\text{Fe}_2\text{O}_3, \text{H}_2\text{O}$ ) will be formed when 100 kg iron completely rusted. **[5]**

OR

**Q2) a)** Discuss the different types of corrosion that we commonly come across. **[5]**

b) Explain conditions required for electrochemical corrosion. **[5]**

**Q3) a)** Explain the two important factors that influence the corrosion of metals? **[5]**

b) Mention the theories of corrosion and explain any one of them. **[5]**

OR

**Q4) a)** Distinguish between wet and dry corrosion. **[5]**

b) What are the differences between EMF and Galvanic Series. **[5]**

**P.T.O.**

- Q5)** a) How does the corrosion product influence further corrosion. [8]  
b) What are the factors that influence corrosion. [8]

OR

- Q6)** a) Explain electrochemical theory of corrosion with suitable example. [8]  
b) Explain the control of corrosion by the use of sacrificial anode. [8]

- Q7)** Write note on [16]  
a) pilling –Bedworth rule  
b) galvanic corrosion  
c) concentration cell corrosion

OR

- Q8)** Write note on [16]  
a) pitting corrosion  
b) passivity  
c) inter-granular corrosion

- Q9)** a) Discuss about the use of inhibitors in corrosion control. [9]  
b) Explain the process of electroplating with a suitable example. Mention the uses of electroplating. [9]

OR

- Q10)** a) Discuss various methods of corrosion control. [9]  
b) Give difference between galvanizing and tinning. [9]

**x x x**