

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree Regular and Supplementary Examination July 2021

Course Code: CH366**Course Name: CORROSION ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) Differentiate activation polarization and concentration polarization with suitable diagrams. (7)
- b) Discuss the direct and indirect economic costs of corrosion. (8)
- 2 a) A steel rod having a surface area of 31.89 cm^2 is dipped in an electrolyte solution. 0.017 g of steel was lost after an exposure time of 7 hours. Density of steel is 8.05 g/cm^3 . Determine the corrosion rate of the sample in 'mpy'. (3)
- b) Explain the effect of velocity and temperature on corrosion. (5)
- c) Explain the mechanism of crevice corrosion with appropriate diagrams. (7)
- 3 a) List and explain about three beneficial applications of galvanic corrosion. (3)
- b) Compare weld decay and knife-line attack. (6)
- c) What is stress corrosion cracking and discuss about the effect of environmental factors on stress corrosion. (6)

PART B*Answer any two full questions, each carries 15 marks.*

- 4 a) Explain Tafel extrapolation method. (8)
- b) What are coatings, its components and explain flamespraying method of applying coatings. (7)
- 5 a) Explain galvanostatic method of corrosion testing. (7)
- b) What are inhibitors, different types of inhibitors, and limitations of inhibitors? (8)
- 6 a) Explain cathodic protection method of corrosion prevention. (7)
- b) Explain linear polarisation method of corrosion testing. (8)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Describe the corrosion control measures employed in composites and polymers. (10)
b) Describe the corrosion control techniques employed in marine industry. (10)
- 8 a) Explain how corrosion is controlled in stainless steel. (10)
b) Explain the different corrosion control measures adopted in power plants. (10)
- 9 a) Explain the causes of corrosion in concrete and suggest measures to control it. (10)
b) Discuss about the corrosion map of India. (10)
