

Hall Ticket Number:

--	--	--	--	--	--	--	--	--	--	--	--

Code No. : 14109 CST

VASAVI COLLEGE OF ENGINEERING (*Autonomous*), HYDERABAD
B.E. (CBCS) IV-Semester Main Examinations, May-2018

Corrosion Science and Technology

(Open Elective-III)

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A ($10 \times 2 = 20$ Marks)

1. Differentiate chemical and electrochemical corrosion.
2. Chromium steels have higher corrosion resistance than steel. Why?
3. Suggest methods to prevent bimetallic corrosion.
4. What is metal cladding?
5. Galvanising is preferred over tinning. Give reason.
6. What is the significance of pretreatment of surface and mention any two methods of pretreatment?
7. Write the principle of electrode position.
8. Give examples for drying oils and why are they used in paints?
9. Mention the applications of cathodic protection.
10. Write the various steps involved in the preparation of PCB using electroless plating?

Part-B ($5 \times 10 = 50$ Marks)

11. a) Explain the mechanism of electrochemical corrosion of iron in carburated water. [6]
b) When Zn and Cu couple is used in a machine tool what type of corrosion takes place and write the corrosion reactions. [4]
12. a) Discuss the electroplating process of Nickel on iron. [6]
b) Differentiate between anodic and cathodic coatings with relevant examples. [4]
13. a) List the various constituents of a paint and explain the functions of its essential constituents. [7]
b) Write a note on epoxy coatings on steel bars. [3]
14. a) Illustrate the protection of under ground pipe line by sacrificial anodic method. [7]
b) What is carburizing? and explain any one of carburizing techniques. [3]
15. a) Discuss the various factors influencing rate of corrosion. [7]
b) Explain coating of a metal on iron by hot dipping method. [3]
16. a) What are the various types of varnishes discuss the role of their constituents? [6]
b) State the principle of cathodic protection and explain sacrificial anodic method. [4]
17. Answer any *two* of the following:
 - a) Differences between electrochemical series and galvanic series. [5]
 - b) Pillig Bedworth rule and its significance. [5]
 - c) Formation of anodic and cathodic areas. [5]

