

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2021****Subject Code:2172107****Date:04/08/2021****Subject Name:Surface Coating Technology****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) State the requirement of coating by giving suitable example of applications.	03
	(b) Classify the surface coatings and treatments methods based on i) Corrosion resistance ii) Wear and abrasion resistance iii) aesthetic appearance.	04
	(c) State the importance of Surface preparation. Classify Mechanical, Chemical & Electro chemical methods of surface preparation.	07
Q.2	(a) Why Phosphate coating on mild steel material? Enlist the various types of phosphate coatings.	03
	(b) Write the process steps of Anodizing process and discuss the benefits of the Anodized coating.	04
	(c) Differentiate between Electrolytic plating process and Electro- less plating. State the application of both the plating technologies.	07
OR		
	(c) Draw Neat Sketch of hot dip galvanizing process and discuss the process parameters of the process.	07
Q.3	(a) Explain the requirement and chemicals used for pickling treatment.	03
	(b) How Electro-less Nickel plating can be achieved?	04
	(c) Discuss the process parameters and factors affecting Electro-deposition Process.	07
OR		
Q.3	(a) Define Sputtering? Draw Schematic only.	03
	(b) Compare Physical Vapour deposition & Chemical Vapour deposition.	04
	(c) Critically compare Boronizing and Boronitriding Process	07
Q.4	(a) Suggest the treatment given to metals to improve its wear resistance.	03
	(b) What is Passivation treatment ? generally which metals are given this treatment ? and Why?	04
	(c) Discuss plasma spray coating technique with its advantages over other techniques.	07
OR		
Q.4	(a) What is Tarnishing on Silver ornaments? How it can be removed?	03
	(b) Compare Liquid Carburizing & Gas Carburizing in terms of media used, quality and productivity of the process.	04
	(c) What is plasma Nitriding ? What are its advantages over other Nitriding Processes. How it can be achieved ?	07
Q.5	(a) State the various quality tests of Electroplated article.	03
	(b) Discuss & draw the defects found in Electroplated objects and state the causes of it.	04

- (c) Describe Electroplating of Copper. Explain factors affecting Electro-deposition **07**

OR

- Q.5** (a) How the mill rust on rolled, forged components can be removed? Which process do you suggest? **03**
- (b) Compare Physical Vapour deposition & Chemical Vapour deposition. **04**
- (c) State the type of Surface Engineering on the following engineering components 1. Stainless Steel Dishes and Bowl 2. Car body 2. Springs 3. Silver religious idols 4. Garden Sprinkler 5. Door Knob 6. I.C engine Cylinder liners 7. Bicycle sprocket. **07**
