

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023

Subject Code:3172115**Date:16-12-2023****Subject Name:Surface Engineering****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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Explain shot blasting process for surface preparation.	03
(b) Describe importance of surface engineering.	04
(c) What are basic aspects for selection of surface preparation method? Explain vapor phase degreasing.	07
Q.2 (a) Why are galvanized utensils not used?	03
(b) Write a note on Nitriding.	04
(c) What is carburizing? Briefly explain. How properties get improved with carburizing? List different methods of carburizing.	07
OR	
(c) Discuss the liquid carburizing process in detail.	07
Q.3 (a) Why is moderate temperature used during electroplating?	03
(b) Discuss induction hardening.	04
(c) Write short note on chromizing. Describe Process parameters and applications.	07
OR	
Q.3 (a) Give applications of anodizing.	03
(b) Explain electroless plating.	04
(c) Explain Tinning process with process controlling factors.	07
Q.4 (a) Discuss applications of thermal spray coating.	03
(b) Mention the advantages of thermal spraying over other coating techniques.	04
(c) Explain chromating in detail.	07
OR	
Q.4 (a) Enlist factors affecting electrodeposition.	03
(b) Explain the thermal spray coating processes.	04
(c) Compare chromating and phosphating processes.	07
Q.5 (a) Describe applications of shot peening.	03
(b) Explain ion implantation method.	04
(c) Explain sputtering method of Physical vapour Deposition. Give Mechanism of Sputtering.	07
OR	
Q.5 (a) Differentiate physical vapor deposition and chemical vapor deposition.	03
(b) Discuss about different spray guns, can be used in thermal spray coating.	04
(c) Explain the surface modification process of a given metallic sample by Friction stir processing.	07
