

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2172102**Date:19/01/2021****Subject Name:Non Destructive Testing****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Explain principle of visual testing and its limitations.	03
	(b) Compare Non Destructive Testing with Destructive Testing.	04
	(c) State principle of Liquid Penetrant Testing (LPT) and with neat sketch explain different steps of LPT.	07
Q.2	(a) List advantages and limitations of LPT.	03
	(b) List the typical characteristics of penetrant and developer in LPT.	04
	(c) Explain Magnetic Particle Testing (MPT) principle and give it's applications and limitations.	07
Q.3	(a) Why and how demagnetization is carried out?	03
	(b) Briefly explain thermal methods for NDT.	04
	(c) Explain in brief the leak testing of heat exchanger tubes in a boiler.	07
Q.4	(a) What is leak and its different types?	03
	(b) Write a note on eddy current testing.	04
	(c) Explain principle and technique of Acoustic Emission Testing (AET).	07
Q.5	(a) What are different types of sound waves? Explain.	03
	(b) Explain in brief the kind of welding defects that can be observed by Ultrasonic Testing (UT).	04
	(c) List UT methods and explain pulse echo method with neat sketch.	07
Q.6	(a) List the advantages and limitations of UT.	03
	(b) With example explain UT calibration steps on V1 or V2 block.	04
	(c) With neat sketch explain different types of ultrasonic probes.	07
Q.7	(a) Differentiate between X-rays and γ rays.	03
	(b) Explain basic principle of Radiographic examination.	04
	(c) Discuss the use of Radiography Testing (RT) in the field of welding. Draw and explain the types of defects that can be observed during the same.	07

- Q.8**
- (a) What is the use of penetrometer in RT? **03**
 - (b) Write about the safety precautions to be taken in industrial radiography. **04**
 - (c) Write short note on X-ray generation with neat sketch in RT. **07**

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