Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2172102 **Date: 23/11/2019**

Subject Name: Non Destructive Testing

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)**	Give the names of all Destructive & Non-destructive testing commonly carried out.	**03**
	(b)	Highlight the use of Borescope in visual testing.	**04**
	(c)	Discuss principle of Ultrasonic testing.	**07**
Q.2	**(a)**	Differentiate Destructive Testing and Non Destructive Testing	**03**
	(b)	Explain principle of visual testing and its limitations.	**04**
	(c)	State principle of liquid penetrant testing (LPT) and with neat sketch explain different steps of LPT.	**07**
		OR	
	(c)	Draw neat sketch of Normal, TR and Angle probes and standard test block used for ultrasonic testing.	**07**
Q.3	**(a)**	Briefly give application and limitations of Visual Testing.	**03**
	(b)	What are different types of sound waves? Explain.	**04**
	(c)	Explain principle of leak testing and discuss Helium leak detection techniques with neat sketch.	**07**
		OR	
Q.3	**(a)**	Define contact angle, capillary action and dwelling time in LPT.	**03**
	(b)	Write note on piezoelectricity	**04**
	(c)	With neat sketch explain different types of ultrasonic probes.	**07**
Q.4	**(a)**	Explain principle of radiography	**03**
	(b)	With example explain UT calibration steps on V1 or V2 block	**04**
	(c)	Explain UT A-scan, B-scan and C-scan.	**07**
		OR	
Q.4	**(a)**	Write note on radiographic film.	**03**
	(b)	What is the use of penetrameter in RT.	**04**
	(c)	List out and explain briefly different MPT equipment.	**07**
Q.5	**(a)**	Briefly explain thermal methods for NDT.	**03**
	(b)	Write note on eddy current testing.	**04**
	(c)	List UT methods and explain pulse echo method with neat sketch.	**07**
		OR	
Q.5	**(a)**	Explain X Ray film processing.	**03**
	(b)	Give salient features of Acoustic Emission Technique.	**04**
	(c)	Explain near zone, far zone and transition zone in UT.	**07**

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