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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2172102   **Date: 15/11/2018**

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.**

Q.1	**(a)**	Compare Non Destructive testing with Destructive testing.	**03**
	(b)	Explain principle of visual testing and list visual aids.	**04**
	(c)	State principle of liquid penetrant testing (LPT) and with neat sketch explain different steps of LPT.	**07**
Q.2	**(a)**	Briefly give application and limitations of Visual Testing.	**03**
	(b)	Define leak and classify it briefly explaining it.	**04**
	(c)	Explain principle of leak testing and discuss Helium leak detection techniques with neat sketch.	**07**

OR

	(c)	With neat sketch of V1 and V2 IIW standard block for Ultrasonic Testing explain its need.	**07**
Q.3	**(a)**	In brief give applications and limitations of LPT.	**03**
	(b)	With example explain UT calibration steps on V1 or V2 block.	**04**
	(c)	Explain magnetic particle testing (MPT) principle and give applications and limitations.	**07**

OR

Q.3	**(a)**	What is contact angle, capillary action and dwelling time in LPT.	**03**
	(b)	Briefly explain different MPT equipment.	**04**
	(c)	Explain different methods of magnetization for MPT.	**07**
Q.4	**(a)**	Explain principle of Ultrasonic testing.	**03**
	(b)	What are different types of sound waves? Explain.	**04**
	(c)	With neat sketch explain different types of ultrasonic probes.	**07**

OR

Q.4	**(a)**	Explain principle of radiography.	**03**
	(b)	What is the use of penetrameter in RT.	**04**
	(c)	Explain near zone, far zone and transition zone in UT.	**07**
Q.5	**(a)**	Define geometric unsharpness (Ug) and write note on radiographic film.	**03**
	(b)	Draw neat sketch of X-ray generation in RT.	**04**
	(c)	Explain UT A-scan, B-scan and C-scan.	**07**

OR

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**

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