Seat No.:	Enrolment No.
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Subject Code:172102

## GUJARAT TECHNOLOGICAL UNIVERSITY

## **BE - SEMESTER-VII EXAMINATION - SUMMER 2016**

Date:07/05/2016

Tir	ne:02 truction 1. 2.	Attempt all questions.	70
Q.1	<ul><li>(a)</li><li>(b)</li></ul>	Define Non-Destructive Testing and explain the general steps used in carrying out Non-Destructive Testing. Enlist major defects in casting and welding process. What are the causes of each defect?	07 07
Q.2	(a) (b)	Compare and contrast pulse echo and through transmission technique with reference to UT.  Explain the terms attenuation, beam spread and acoustic impedance and their importance in UT.  OR	07 07
	<b>(b)</b>	Explain the term 'Film contrast', 'subject contrast' and IQI and their importance in radiographic testing.	07
Q.3	<ul><li>(a)</li><li>(b)</li></ul>	What is visual testing? What is the role of eye in visual testing? Discuss the factors which affect visual testing.  Explain various visual aids used in V.T. What is a borescope? How and where it is used.	07 07
		OR	
Q.3	(a) (b)	What is leak and leak rate? Give a list of leak testing methods highlighting their principle and application.	07 07
Q.4	(a) (b)	"Eddy current testing is a versatile non destructive testing technique." Explain the statement critically.  Explain the principle of magnetic particle testing (MPT). What are its advantages and limitations?	07 07
Q.4	(a)	OR  Name different methods of magnetization. Why and how demagnetization is carried out?	07
	<b>(b)</b>	Explain the principle and applications of Acoustic Emission Technique. What is the unique feature of this technique?	07
Q.5	(a)	Explain the following.  1) Geometrical unsharpness (2)  2) Test coils in ECT (2)  3) Properties of X-rays and gamma rays(3)  OR  3) Ultrasonic probes (3)	07
	<b>(b)</b>	Compare and contrast UT and RT  OR	07

- Q.5 Explain basic principle of the thermography and its applications as an NDT **07** technique.
  - Explain the following. **(b)** 
    - 1) Flux leakage (2)
    - 2) Magnetic permeability (2)
      3) Fill factor and lift off (3)

OR

3) B-scan and C-scan CRT display in UT (3)

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