

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3161923****Date:14-07-2023****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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) State the objectives of Non Destructive Testing	03
	(b) Define developer. Describe standard forms of developers used in dye penetrant testing (DPT).	04
	(c) Enlist different tools used in Visual Inspection and explain constructional working of borescope used in visual inspection with neat sketch.	07
Q.2	(a) List the advantages and disadvantages of Magnetic Particle testing (MPT).	03
	(b) Discuss factors affecting the Eddy current testing (ECT).	04
	(c) Explain pulse echo technique for Ultrasonic testing (UT) method with neat diagram.	07
OR		
	(c) Explain the principle of Dye penetrant testing (DPT). Clearly mention the application for same.	07
Q.3	(a) Write short note on radiographic film used in Radiographic testing (RT) with neat sketch.	03
	(b) Explain any four factors influencing acoustic wave on propagation and data acquisition in acoustic emission testing (AET).	04
	(c) Explain straight beam and angle beam testing techniques used in ultrasonic testing (UT).	07
OR		
Q.3	(a) Define terms related to dye penetrant testing (DPT). 1) Capillary action 2) Dwell time 3) contact angel	03
	(b) Explain indirect magnetization method in magnetic particle testing (MPT).	04
	(c) Explain use of ultrasonic testing (UT) in field of welding With types of defects that can be detected during the same.	07
Q.4	(a) Enlist the properties of X-ray and Gamma Rays	03
	(b) Explain safety precautions to be taken during Radiographic testing (RT).	04
	(c) Explain the working of piezoelectric transducer with a neat sketch with its advantages and disadvantages.	07
OR		
Q.4	(a) How the quality of a good radiograph is accessed?	03
	(b) Explain any two methods of coupling in ultrasonic testing (UT).	04

- (c) With suitable diagram explain the process of radiography testing (RT) using Cobalt 60 isotope. **07**
- Q.5** (a) What are the prime advantages of Radiographic Examination during NDT? **03**
- (b) Explain the principle of Ultrasonic Testing (UT). **04**
- (c) Discuss different techniques for Thermography with its application. **07**
- OR**
- Q.5** (a) What do you mean by leak testing? Enlist different methods that can be used for leak testing. **03**
- (b) Describe the advantages and limitations of Eddy current testing (ECT)? **04**
- (c) Explain SWSI and DWSI inspection techniques in radiographic testing (RT). **07**
