

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3161923****Date:13-12-2023****Subject Name: Non destructive Testing****Time:02:30 PM TO 05:00 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.

- Q.1** (a) Outline the circular magnetization used in Magnetic Particle Testing **03**
 (b) What is the dwell time in Liquid Penetrant Testing? Mention the reasons for provision of dwell time. **04**
 (c) Choose the correct method to detect the porosity within few mm depth from surface in ferromagnetic material. Explain the method with neat sketch **07**
- Q.2** (a) Brief about the emulsifiers used in liquid penetrant testing **03**
 (b) Describe the significance of different current sources used in Magnetic Particle Testing **04**
 (c) Choose the correct method to detect the surface discontinuity in large size component **07**
- OR**
- (c) What are the advantages, limitations and applications of Liquid Penetrant Testing method **07**
- Q.3** (a) Illustrate the sensitivity of Ultra sonic testing method **03**
 (b) Describe the advantages, limitations of Eddy Current Testing **04**
 (c) Determine the correct method to detect and identify the size of volumetric defects **07**
- OR**
- Q.3** (a) Illustrate the sensitivity of Eddy current testing **03**
 (b) Describe the advantages, limitations of Ultrasonic Testing Method **04**
 (c) Decide the correct method used to detect and identify the size of interior defects **07**
- Q.4** (a) Enlist the applications of radiographic inspection **03**
 (b) Describe the significance of Angle beam Pulse Echo Testing **04**
 (c) Choose the correct method to detect the inclusions in multiple components at a time **07**
- OR**
- Q.4** (a) Outline the advantages and limitations of bubble testing for leakage detection **03**
 (b) Examine the sources used in Radiographic Testing. What type of precautions are required? **04**
 (c) Explain the Radiographic Testing method **07**
- Q.5** (a) Outline the Holography method **03**
 (b) Enlist the various Leak Detection techniques. Describe anyone. **04**
 (c) Explain in brief Eddy Current Testing. **07**
- OR**
- Q.5** (a) Compare the destructive and non-destructive testing. **03**
 (b) Brief the sniffing technique of leak detection **04**
 (c) Describe the significance of flux produced in Eddy Current Testing **07**
