

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATIONS SP/2025)

CLASS: BTECH  
BRANCH: MECHANICAL

SEMESTER : IV  
SESSION : SP/2025

SUBJECT: ME219 NON-DESTRUCTIVE TESTING

TIME: 02 Hours

FULL MARKS: 25

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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|--------|---|-----|-----|
| Q.1(a) | Explain the factors that affect reliability of a Non-Destructive testing method.  | [2] | 1 2 |
| Q.1(b) | Outline the steps for evaluation of a surface flaw by liquid penetrant inspection method with neat sketch.                | [3] | 1 4 |
| Q.2(a) | Give the basic properties of developer.   | [2] | 1 2 |
| Q.2(b) | Compare Non-destructive test with destructive test.   | [3] | 1 3 |
| Q.3(a) | Discuss the importance of direction of magnetic field with respect to flaw detectability in magnetic particle inspection. | [2] | 2 3 |
| Q.3(b) | Explain the magnetization methodology using a threading bar.  | [3] | 2 3 |
| Q.4(a) | Why it is necessary to do demagnetization of component in practice.   | [2] | 2 3 |
| Q.4(b) | Demonstrate the principle of magnetic particle test with neat sketch.   | [3] | 2 3 |
| Q.5(a) | Discuss conductivity and skin effect in eddy current test.  | [2] | 2 2 |
| Q.5(b) | Outline the Eddy current test with neat sketch.   | [3] | 2 3 |

::::::28/02/2025::::::E