

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BTECH
BRANCH: MECHANICAL**

**SEMESTER : IV
SESSION : SP/2025**

SUBJECT: ME219 NON-DESTRUCTIVE TESTING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Outline the various steps for Non-Destructive testing.	[5]	1 3
Q.1(b)	Describe with neat sketch for detection in a bolted joint by liquid penetrant inspection method.	[5]	1 3
Q.2(a)	Illustrate the factors lift off factor, edge and skin effects which affects eddy current.	[5]	2 3
Q.2(b)	Describe magnetization using an electromagnet.	[5]	2 2
Q.3(a)	Demonstrate with neat sketch production of X-rays in a X-ray tube.	[5]	3 3
Q.3(b)	Illustrate the basic principle of Radiography and discuss some applications.	[5]	3 2
Q.4(a)	Describe Through transmission (immersion type) ultrasonic test for flaw detection.	[5]	4 3
Q.4(b)	Analyze different modes of data presentation in ultrasonic test.	[5]	4 4
Q.5(a)	Enumerate the types of defects in forging along with their cause.	[5]	5 3
Q.5(b)	Give the basis of selection for the NDT methods. Establish the factors due to which defects are introduced during service condition.	[5]	5 3

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