

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

**CLASS: BTECH
BRANCH: MECHANICAL**

**SEMESTER: V
SESSION: MO/2022**

SUBJECT: ME337 NON-DESTRUCTIVE TESTING

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
-

			CO	BL
Q1	(a)	Explain the factors that affect reliability of a Non-Destructive testing method.	[2]	1 2
Q1	(b)	Outline the stages of support provided by Non-Destructive testing in case of any mechanical component.	[3]	1 4
Q2	(a)	Describe the role of a penetrant along with its desirable properties.	[2]	1 2
Q2	(b)	Outline the steps for evaluation of a surface flaw in a weld joint by liquid penetrant inspection method.	[3]	1 4
Q3	(a)	Explain the magnetization methodology using a threading bar in case of magnetic particle inspection.	[2]	2 2
Q3	(b)	Summarize the factors that influence sensitivity of magnetic particle inspection.	[3]	2 4
Q4	(a)	Explain the underlying principle of eddy current technique with a neat sketch.	[2]	2 2
Q4	(b)	Demonstrate the use of a twin coil bobbin arrangement for examination of heat exchanger or condenser tubes.	[3]	2 3
Q5	(a)	Discuss the importance of direction of magnetic field with respect to flaw detectability in magnetic particle inspection.	[2]	2 2
Q5	(b)	Explain skin effects in eddy current testing.	[3]	2 3

:::::: 01/10/2022 ::::::::M