

THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY**MECHANICAL ENGINEERING DEPARTMENT****2024 SEMESTER TWO – FINAL EXAMINATIONS****ME324 – NONDESTRUCTIVE TESTING****WEDNESDAY, OCTOBER 23RD, 2024****TIME ALLOWED: TWO HOURS****INSTRUCTIONS TO STUDENTS:**

1. Please ensure that you write your NAME and NUMBER on the front page.
2. Kindly respond to all questions directly without including unnecessary information.
3. Mobile phones, additional paper, notes, and textbooks are strictly prohibited.
4. Any form of cheating will result in severe punishment.

Thank you for your cooperation.

MARKING SCHEME: 40**PART ONE: ANSWER THE FOLLOWING QUESTIONS****[30 MARKS]**

1. What is the X-ray machine that has three main controls for X-rays? [3 marks]
2. List only two primary disadvantages of magnetic particle testing and only two primary disadvantages of eddy current. [4 marks]
3. What is piezoelectric effect and which non-destructive testing method uses it? [4 marks]
4. How can thermal infrared technology be utilized for predictive maintenance in mechanical and electrical systems? Provide an example for each system? [5 marks]
5. What is the difference between paramagnetic and ferromagnetic materials? Give an example of each. [6 marks]
6. Eddy's current testing method can be applied in four main areas. List them. [8 marks]

PART TWO: IDENTIFY THE FOLLOWING LABEL ITEMS

[10 MARKS]

#	ID	LABELLE ITEMS
1	A	
2	B	
3	C	
4	A1	
5	B1	
6	C1	
7	M	
8	N	
9	O	
10	L	
11	K	
12	H	
13	G	
14	F	
15	W	
16	S	
17	T	
18	Y	
19	Z	
20	X	

