

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Seventh Semester

Mechanical Engineering

OML351 - Introduction to Non-Destructive Testing

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	List out the service conditions that lead to failure of a material.	L1	1	2
2.	Discriminate aided and unaided visual testing methods.	L2	1	2
3.	Why should the material be demagnetized after it is subjected to NDT?	L1	2	2
4.	Recommend the effect of size and shape of the magnetic particles on the inspection process.	L1	2	2
5.	Give the types of Infrared detectors.	L1	3	2
6.	How the depth of penetration of eddy current does is affected by the frequency of the current?	L1	3	2
7.	Classify the waves in ultrasonic testing.	L2	4	2
8.	List the factors influencing in ultrasonic testing technique.	L1	4	2
9.	Narrate Rayleigh scattering.	L1	5	2
10.	Differentiate the properties of X rays and Gamma rays.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11. a	Illustrate about discontinuities. Explain various types of discontinuities with examples.	L2	1	16
	Or			
b	Explain the various types of borescopes used in visual inspection with neat sketches.	L2	1	16
12. a	Discuss about the physical principles of liquid penetrant testing with neat sketch. Also bring out the advantages and limitations of the liquid penetrant testing.	L2	2	16

Or

	b	Discuss about the various ways of magnetizing the component for magnetic particle testing.	L2	2	16
13.	a	Enumerate the various probes used in EDT with details and sketches.	L3	3	16
		Or			
	b	Explicate the principle of thermography testing by active approach and mention few applications of it.	L3	3	16
14.	a	Describe the time of flight diffraction and phased array techniques of ultrasonic testing with neat figures.	L2	4	16
		Or			
	b	Demonstrate the principle of four channel data acquisition in Acoustic Emission testing with neat sketch.	L2	4	16
15.	a	Explain the three-step process of computed radiography and mention the significant advantages.	L3	5	16
		Or			
	b	Explain the stages of film processing and development with flow diagram.	L3	5	16