

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

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)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Give the Importance of using NDT methods?	RE	1	2
2.	Discriminate destructive testing and non-destructive testing.	UN	1	2
3.	For which type of materials penetrant testing is not recommended?	RE	2	2
4.	Components test by magnetic particle testing has to be demagnetized. Why?	RE	2	2
5.	Write the principle of Eddy current testing.	RE	3	2
6.	Differentiate between active and passive thermography?	UN	3	2
7.	Name the standard calibration blocks used in UST.	RE	4	2
8.	Depth of penetration of ultrasonic waves decreases as the frequency ultrasonic waves increases. Comment.	UN	4	2
9.	Compare and contrast radiography testing with ultrasonic testing.	UN	5	2
10.	What do you mean by computed tomography?	RE	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Describe the testing methods in detail for material characterization. Or	UN	1	13
	b Explain in detail about the various types of boroscopes used in visual inspection with neat sketches.	UN	1	13
12.	a Discuss about the various ways of magnetizing the component in NDT. Or	CR	2	13
	b Elaborate the post emulsifying lipophilic and solvent removable methods in liquid penetrant testing using the process flow diagram.	AN	2	13
13.	a What is Eddy current testing? Explain the principle with a neat sketch and discuss the different types of coil arrangements used in eddy current testing. Or	UN	3	13
	b Illustrate the various IR detectors with neat sketch.	UN	3	13

14.	a	Explain various components involved in ultrasonic testing equipment with block diagram.	UN	4	13
		Or			
	b	Illustrate the principle of acoustic emission technique, Discuss about the various parameters involved in AET.	UN	4	13
15.	a	Brief write about the following phenomena during interaction of X-ray with matter: (i) Photoelectric effect (ii) Compton scattering (iii) Pair production (iv) Thomson scattering	EV	5	13
		Or			
	b	Narrate a case study of radiography testing method. What are the advantages of gamma radiography compared to X-ray radiography? What are the penetrometers of radiography testing? List the different types of penetrometers.	EV	5	13

PART – C (Marks 1*15 = 15)

Q.No		Questions	BLT	CO	Marks
16.	a	Examine the following with suitable sketch: (i) Elasticity (ii) Hardness (iii) Brittleness (iv) Ductility (v) Malleability	AN	1	15
		Or			
	b	Compare the Active and passive thermography methods for identifying welding defects.	EV	3	15