Reg. No.															

Question Paper Code	13778

M.E. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Second Semester

M.E - CAD/CAM

24PCDEL210 - METROLOGY AND NON DESTRUCTIVE TESTING

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Define Resolution.	2	K1	CO1
2.	Give any four methods of measurement.	2	K1	CO1
3.	List the types of statistical measuring tools.	2	K1	CO2
4.	What is control planning?	2	K1	CO2
5.	Why should the material be demagnetized after it is subjected to NDT?	2	K1	CO3
6.	List the essential characteristics of magnetic particles.	2	K1	CO3
7.	Summarize the properties of X rays and Gamma rays.	2	K2	CO4
8.	Define Photo electric effect.	2	K1	CO4
9.	Narrate the principle of acoustic emission testing.	2	K2	CO5
10.	List the factors influencing acoustic wave propagation.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Describe briefly about tool makers microscope.	13	K2	CO1
		OR			
	b)	Explain the features of machine vision technology.	13	K2	CO1
12.	a)	Enumerate the process of process capability of any production process.	13	K2	CO2
		OR			
	b)	What is sampling? Explain its types and its importance in SQC.	13	K2	CO2
13.	a)	Discuss about the principles of liquid penetrant testing with neat sketch. Also bring out the advantages and limitations.	13	K2	CO3
		OR			
	b)	Discuss about the various ways of magnetizing the component for magnetic particle testing.	13	K2	CO3

14.	a)	Explain the different sources of radiation used in radiographic testing, with emphasis on X-ray and gamma-ray production.	*13*	*K2*	*CO4*
		OR			
	b)	Discuss the following			
		(i) Crank-out mechanism for Gamma ray radiographic exposure.	*7*	*K2*	*CO4*
		(ii) Gamma source isotopes and their characteristics.	*6*	*K2*	*CO4*
15.	a)	Describe the principle of ultrasonic testing with suitable block diagram. List the advantage and disadvantages.	*13*	*K2*	*CO5*
		OR			
	b)	Illustrate with neat sketch about the following (i) A-scan (ii) C-scan (iii) B-scan	*13*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	Discuss about four important processes when interaction of X-rays with matter.	*15*	*K2*	*CO4*
		OR			
	b)	Explain the industrial applications of ultrasonic and acoustic emission techniques.	*15*	*K2*	*CO5*