Question Paper Code	12798

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024
Second Semester
M.E. - CAD/CAM
20PCDEL210 - METROLOGY AND NON DESTRUCTIVE TESTING
Regulations - 2020

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks	K-Level	CO
1.	What is meant by axial length measuring accuracy?	2	K1	CO1
2.	Compare CMM and UMM.	2	K2	CO1
3.	Distinguish between random causes and assignable causes in SQC.	2	K2	CO2
4.	Define operating characteristic function of a control chart.	2	K1	CO2
5.	List the materials to be used as a developer in Liquid Penetrant Testing.	2	K1	CO3
6.	Define capillary action.	2	K1	CO3
7.	List the safety aspects related to Radiographic testing.	2	K1	CO4
8.	State the various classes of films and explain their characteristics.	2	K1	CO4
9.	List the elements associated with ultrasonic testing.	2	K1	CO5
10.	List the variables that are influencing the results in ultrasonic testing.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

			Marks	K-Level	CO
11.	a)	Explain in detail on Image sharing microscope.	13	K2	CO1
		OR			
	b)	With the help of block diagram explain a measurement system.	13	K2	CO1
12.	a)	Discuss in detail on reliability testing and give its importance.	13	K2	CO2
		OR			
	b)	Explain in detail on ABC standard and its importance.	13	K2	CO2
13.	a)	Explain in detail about the following: (i) Surface preparation methods. (ii) Excess penetration removal methods	13	K2	CO3
		OR			
	b)	Explain about various steps involved in Magnetic particle inspection process with suitable flow diagram.	13	K2	CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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14. a) Discuss about the safety aspects related to Radiographic testing. *13 K2 CO4*

   OR

   b) State the various classes of films and explain their characteristics. *13 K2 CO4*

15. a) With neat sketch, explain the Ultrasonic transducers used in Ultrasonic testing. *13 K2 CO5*

   OR

   b) Describe the factors influencing acoustic wave propagation and data acquisition in Acoustic Emission test. *13 K2 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) What do you understand on fractional defectives with control charts? Explain with an example. *15 K2 CO2*

   OR

   b) How computed radiography differs from conventional radiography? Briefly write about the principle of operation of computed radiography. *15 K2 CO4*