

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (R, S) / S4 (PT) (R, S) Examination June 2023 (2019 Scheme)

**Course Code: MET312****Course Name: NON-DESTRUCTIVE TESTING****Max. Marks: 100****Duration: 3 Hours****PART A***Answer all questions, each question carries 3 marks.*

		Marks
1	Define Non-destructive testing?	(3)
2	Explain the advantage of Non-destructive testing?	(3)
3	Describe the basic principle of Liquid Penetrant inspection?	(3)
4	Explain the characteristics of Penetrant?	(3)
5	What is the principle of Magnetic Particle Inspection?	(3)
6	List the advantage of Magnetic Particle Inspection?	(3)
7	Explain the basic principle for Ultrasonic Testing?	(3)
8	What are the limitations of Ultrasonic Testing?	(3)
9	Compare X-rays and Gamma rays related with NDT.	(3)
10	Explain the properties of eddy current?	(3)

PART B*Answer any one full question from each module, each carries 14 marks.***Module I**

- 11 a) Explain the basic principle and application of visual inspection? (7)
 b) With the help of neat sketch, explain fibro scope and Boroscope. (7)

OR

- 12 a) Explain visual inspection process and optical aids used in visual inspection? (7)
 b) With the help of neat diagram, explain computer enhanced visual inspection system. (7)

Module II

- 13 a) Explain the types of penetrants? (7)
 b) Explain the properties for a good penetrant? (7)

OR

- 14 a) With the help of neat diagram, explain the various steps involved in LPI. (7)
 b) Explain the application and limitation of Liquid Penetrant inspection? (7)

Module III

- 15 a) Explain the hysteresis loop with neat sketch? (7)
b) Explain dry continuous and wet continuous Magnetic Particle Inspection? (7)

OR

- 16 a) Explain direct and indirect method of magnetization also list the advantage and disadvantage of both methods? (7)
b) With the help of neat sketches, explain how the longitudinal and circular magnetic field identify the cracks in MPI. (7)

Module IV

- 17 a) With neat sketches, explain A-Scan, B-Scan and C-Scan. (7)
b) Explain the advantage and application of Ultrasonic Testing? (7)

OR

- 18 a) Explain with neat sketches, how the defects in welded products are identified by Ultra sonic testing. (7)
b) Explain through transmission technique and pulse echo testing technique? (7)

Module V

- 19 a) Explain SWSI, DWSI, and DWDI? (7)
b) Explain the relation between frequency and depth of penetration in ECT? (7)

OR

- 20 a) Explain the types of coil arrangement and its applications, limitations and advantages in ECT? (7)
b) Explain the properties of X-rays used in Radiography? (7)
