

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2023**MECHANICAL ENGINEERING****(2020 SCHEME)****Course Code : 20MET312****Course Name: Non-destructive Testing****Max. Marks : 100****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Define Non-destructive testing? Explain any 3 scopes on NDT.
2. Differentiate between Destructive Testing and Non-destructive Testing.
3. List the important characteristics of penetrant materials.
4. Explain about the advantages and disadvantages of LPI.
5. Explain about any three checking devices used in MPI
6. Discuss residual magnetism and its effect on NDT.
7. Explain TOFD process in Ultrasonic NDT.
8. Detail the transmission technique used in Ultrasonic NDT.
9. Explain the properties of X-rays.
10. Discuss the lift-off effect and edge effect in ECT.

PART B***(Answer one full question from each module, each question carries 14 marks)*****MODULE I**

11. Explain any 4 non-destructive testing methods with neat figures (14)

OR

12. a) Describe the various types of optical aids used in the process. (8)
b) Differentiate between destructive and non-destructive testing techniques. (6)

MODULE II

13. With neat sketches explain the various steps involved in performing LPI. (14)

OR

14. Explain in detail, how penetrants are classified based on their removal technique. (14)

MODULE III

15. Describe the advantages, limitations and applications of Magnetic Particle Inspection. (14)

OR

16. With neat figures explain any 3 magnetization techniques used in MPI process. (14)

MODULE IV

17. Discuss the principle of Ultrasonic Non-Destructive Testing. Explain any four modes of wave propagation in Ultrasonic NDT. (14)

OR

18. Describe the A, B and C scan representation in Ultrasonic NDT. (14)

MODULE V

19. Describe the process of Eddy current NDT with neat figures. (14)

OR

20. Write short note on industrial radiography. Explain the SWSI and DWSI techniques in Radiographic NDT. (14)
