

USN

--	--	--	--	--	--	--	--	--	--

10AE756

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021
Non Destructive Testing

Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FIVE full questions, selecting at least TWO questions from each part.
 2. Draw neat sketches wherever necessary.

PART - A

- 1 a. What are the objectives of NDE? What are the steps involved in NDE? (07 Marks)
 b. What are the factors influencing the reliability of NDE. (06 Marks)
 c. Give the summary of defects/properties evaluated by NDT. (07 Marks)
- 2 a. What is radiographic inspection? Explain. (10 Marks)
 b. What is gamma ray radiography? Give applications of gamma ray radiography. (10 Marks)
- 3 a. List and explain briefly any three variables in ultra-sonic inspection. (08 Marks)
 b. Explain the immersion technique of ultrasonic inspection. (07 Marks)
 c. Explain the ultrasonic testing of fillet welds. (05 Marks)
- 4 a. Explain clearly how material properties affect the speed of sound. Write down the general relationship between speed of sound and elastic constants. (10 Marks)
 b. Explain with suitable sketches, in brief the different methods of ultrasonic testing used in non destructive evaluation of materials. (10 Marks)

PART - B

- 5 a. Explain the principle of liquid penetrant test. (08 Marks)
 b. What are the equipments used in liquid penetrant testing? Explain briefly. (08 Marks)
 c. What are the safety precautions to be followed during liquid penetrant test? (04 Marks)
- 6 a. What is MPT? Sketch and explain the process, also explain the limitations. (10 Marks)
 b. Tabulate the advantages and disadvantages of MPT. (10 Marks)
- 7 a. Describe the principle of Eddy current system and describe the basic eddy current inspection system. (08 Marks)
 b. List down the factors influencing the eddy current inspection testing and explain about any two factors. (06 Marks)
 c. What are the advantages, limitations, applications of eddy current inspection method? (06 Marks)
- 8 a. Explain the principle and applications of thermal inspection. (08 Marks)
 b. Explain about any two interferometric techniques of Holographic inspection. (06 Marks)
 c. Compare Acoustic Emission inspection with other NDT methods. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.