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Total No. of Printed Pages: [01]

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B. Tech. (Mech. Engg.) (Semester –7th)

NON-DESTRUCTIVE TESTING

Subject Code: BMECD1721

Paper ID: 18112341

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) What is the scope of Non-destructive testing?
- b) What is the meaning of the term "Sonic Material Analyzer"?
- c) Name the different methods for detection of defects in ferrous & nonferrous metals?
- d) List the materials for Liquid Penetrant Testing procedure.
- e) What is the criteria for the selection of film in radiography?
- f) Define near and far field.
- g) Classify different types of magnetic materials.
- h) What is the role of the Sperry detector in railway NDT inspections?
- i) Explain briefly about magnetic hysteresis.
- j) What is the principles of film Radiographic Testing?

Section – B

(5 marks each)

- Q2. After the object's magnetic particle testing what is the need of demagnetization and how it can be done?
- Q3. Write a short note on concrete test hammer with the help of suitable diagram.
- Q4. Compare non-destructive testing with destructive testing with the help of suitable examples.
- Q5. Explain the different applications, limitations, codes, standards and specifications related of Ultrasonic Testing?
- Q6. Write a short note on Xeroradiography.

Section – C

(10 marks each)

- Q7. Explain the working principle of magnetic particle testing. Discuss its various magnetizing techniques with the help of suitable diagrams.
- Q8. Explain the importance of penetrant and developer. In a good penetrant and developer what are the required properties? Explain.
- Q9. Describe the working principle of radiographic examination with suitable diagram. Discuss various factors that affect radiographic imaging.