

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018**

**Course Code: ME367**

**Course Name: NON-DESTRUCTIVE TESTING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any three full questions, each carries 10 marks.*

- |   |  | Marks |
|---|--|-------|
| 1 | a) Explain the scope of NDT.   | (5)   |
|   | b) What technique and device is best suited for inspecting aircraft engine peripheral details? | (5)   |
| 2 | a) Write short note on holography.   | (5)   |
|   | b) What are the mechanical aids used in visual inspection?                                     | (5)   |
| 3 | a) What are the different types of developers? How it can be applied?                          | (5)   |
|   | b) Differentiate between ordinary penetrant testing and fluorescent penetrant testing.         | (5)   |
| 4 | a) Explain the principle of dye penetrant testing.   | (5)   |
|   | b) Clearly mention the advantages, disadvantages and applications of DPT                       | (5)   |

**PART B**

*Answer any three full questions, each carries 10 marks.*

- |   |   |    |
|---|---|----|
| 5 | An 8 mm thick MS plate of size 300 mm X 250 mm has to be tested for internal defects. Explain the inspection procedure with sketches using magnetic prod.           | 10 |
| 6 | a) Is it essential to demagnetise the specimen before and after the magnetic particle testing? Substantiate your answer.  | 5  |
|   | b) A 6 mm carbon steel plate is brought to the testing lab. A magnetic yoke with Ac and DC mode is available. What mode you prefer to reveal internal defects? Why? | 5  |
| 7 | What are the different wave forms used in ultrasonic testing?   | 10 |
| 8 | a) What are the different types of probes used in ultrasonic testing?   | 5  |
|   | b) A 10 mm MS plate has to be tested for delamination. Explain the procedure using ultrasonic equipment   | 5  |

**PART C**

*Answer any four full questions, each carries 10 marks.*

- 9 a) Explain the process of film processing in radiography testing. 5  
b) Write short note on image quality indicators. 5
- 10 With suitable diagram explain the process of radiography testing using Cobalt 60 isotope. 10
- 11 a) Compare and contrast between X-ray and Gamma ray. 5  
b) What are safety measures to be carried out during radiography testing? 5
- 12 The tube bundle of a shell and tube heat exchanger has to be inspected for internal corrosion. Suggest the most suitable NDT technique and explain it. 10
- 13 a) What are the different types of eddy current testing probes? 5  
b) What are the major limitations of eddy current testing? 5
- 14 a) Explain the principle of eddy current testing. 5  
b) What are the applications and advantages of eddy current testing? 5

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