

**B.Tech. - VIEP - MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination**

**June, 2017**

**00254**

**BIMEE-011 : NON-DESTRUCTIVE TESTING**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **five** questions. All questions carry equal marks.

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1. (a) Make a comparative study of destructive and non-destructive testing based on advantages and limitations. 7
- (b) Surface micro-cracks and sub-surface discontinuities are to be inspected. Which one would be the best non-destructive method ? Suggest appropriate method with justification. 7
2. (a) Briefly discuss the different optical aids used for visual inspection. 7
- (b) State the step-by-step procedure for liquid penetrant testing. 7

3. (a) Briefly discuss the various methods which can be used for magnetization during magnetic particle testing. 7
- (b) What are the different methods to generate magnetic field ? Also comment on various types of magnetic probes. 7
4. (a) Explain the principle of X-ray radiography technique and state its applications. 7
- (b) What safety measures would you consider as precautions against radiation hazards ? 7
5. (a) Enumerate the ultrasonic inspection method to detect flaws in cast and wrought iron welded parts. 7
- (b) Describe in brief the advantages, limitations and typical application of ultrasonic inspection techniques. 7
6. (a) Describe the principle of eddy current testing with the help of a block diagram. 7
- (b) Describe in brief the different types of probes used in eddy current testing. 7

7. Write short notes on any **four** of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Piezoelectricity
  - (b) Scattering Factor
  - (c) Photoelectric Effect
  - (d) Magna Glow Testing
  - (e) Flaws and Defects
  - (f) Skin Effect
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