

**B.Tech. MECHANICAL ENGINEERING
(BTMEVI)****Term-End Examination****December, 2013****BIMEE-011 : NON-DESTRUCTIVE TESTING***Time : 3 hours**Maximum Marks : 70*

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

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| 1. | (a) | Elaborate visual inspection as a non-destructive testing method. Comment on its-importance, strengths and limitations. | 7 |
| | (b) | List all the optical aids that are used in visual inspection. Describe any two of them giving specific applications of each one of them. | 7 |
| 2. | (a) | Explain step-by-step procedure for Dye-penetrant test. Give the names of all the consumables that are used in this test and also mention characteristics of each consumable. | 10 |
| | (b) | List all the magnetising methods that are used in magnetic particle testing. | 4 |
| 3. | (a) | Mention step -by- step procedure which is followed in magnetic particle testing. List all the conditions which necessitates surface preparation of the component before test. | 9 |
| | (b) | Discuss the effect of test frequency on the results of eddy current testing. | 5 |

4. (a) Describe the construction and working of an eddy current test equipment with the help of a block diagram 10
- (b) Mention applications specific to "Low frequency eddy current testing". 4
5. (a) Discuss principles of radiographic examination. 7
- (b) Compare and contrast X-Ray and Gamma-ray radiography. 7
6. (a) What is attenuation in ultrasonic testing ? What are its causes ? How is it estimated ? 10
- (b) What issues do you foresee in testing cast iron component using ultrasonic testing ? 4
7. Write short notes on **any three** of the following : 14
- (a) Safety and Health concerns in radiographic testing.
- (b) Rayleigh waves.
- (c) Effect of lift off during eddy current testing.
- (d) Flexiscopes.
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