Total No. of Questions :8 *[Total No. of Printed Pages :2*

Roll No .....

MMPD-103

M.E./M.Tech., I Semester

Examination, December 2016

Material Technology And Failure Analysis

Time : Three Hours

Maximum Marks : 70

Note: i) Answer any five questions.
ii) All questions carry equal marks.

1. a) Explain with the help of examples Ionic bonding and Covalent bonding.
   b) What do you understand by Allotropy and Polymorphism?

2. a) What are different types of live defects? Explain.
   b) What is damping capacity? How can you measure it?

3. a) Discuss the effect of cold working on metal structure.
   b) What is fatigue limit? Discuss its importance.

4. a) What do you mean by slip system? How many slip systems are there in HCP crystal?
   b) Explain strain aging process with the help of neat sketch.

5. a) What is endurance limit? How do you measure it for different materials?
   b) What are the causes of stress concentration?

6. a) What is creep? Discuss the mechanism of creep.
   b) Write a note on creep curve.

7. a) Discuss different stages of fracture.
   b) What is Fatigue toughness? Discuss its significance.

8. Write short notes on any two:
   a) Theories of failure,
   b) Strain hardening and its effect,
   c) Goodman and Gerber relation and its application.

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