

00210

**BACHELOR OF TECHNOLOGY IN  
MECHANICAL ENGINEERING  
(COMPUTER INTEGRATED  
MANUFACTURING)  
B.Tech. (Aerospace Engineering)  
(BTMEVI)**

**Term-End Examination  
June, 2013**

**BME-018 : ENGINEERING MATERIALS**

*Time : 3 Hours*

*Maximum Marks : 70*

*Note : Answer any five of the following questions. Use of the  
Calculator is allowed.*

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1. (a) Distinguish between shapes of hammers 7+7  
used in Izod and Charpy impact tests.
  - (b) Mention the factors that reduce fatigue  
strength and improve fatigue strength.
  
  2. (a) Explain eutectoid and peritectic 8  
transformations with the help of Fe-C phase  
diagram.
  - (b) Differentiate between 6
    - (i) Austempering and martempering,
    - (ii) Annealing and quenching.

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|----|-----|---|----|
| 3. | (a) | Describe various types of insulator.  | 8  |
|    | (b) | Discuss the properties of refractory materials.   | 6  |
| 4. | (a) | What is plasticiser? Give examples. Which property of polymer is improved by addition of plasticisers? Explain. | 7  |
|    | (b) | Explain hand-pay-up process of composites.  | 7  |
| 5. | (a) | Describe four types of cracks.  | 8  |
|    | (b) | Explain with the help of sketches the model that explains fatigue crack growth in a ductile material.           | 6  |
| 6. | (a) | What is Irwin's criterion of fracture ? Explain.  | 6  |
|    | (b) | Give classification of lubricants with their properties and applications.                                       | 8  |
| 7. |     | Write short notes on any four of the following :  | 14 |
|    | (a) | Broken fibres   |    |
|    | (b) | Flame hardening   |    |
|    | (c) | Martensite  |    |
|    | (d) | Babbitts  |    |
|    | (e) | Sialons   |    |

