

**DIPLOMA IN MECHANICAL ENGINEERING  
(DME)/DMEVI**

**Term-End Examination**

00723

**December, 2018**

**BME-050 : ENGINEERING MATERIALS**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** *Question No. 1 is compulsory. Attempt any four questions out of the remaining questions number 2 to 6. Use of calculator is permitted.*

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1. Define any **seven** of the following :  $7 \times 2 = 14$
- (a) Ultimate strength and Yield strength
  - (b) Critical cooling rate
  - (c) Differentiate between normalizing and tempering
  - (d) Contents of low carbon steel
  - (e) Transformation reactions in Iron-Carbon phase diagram
  - (f) Case hardening
  - (g) Measure of ductility
  - (h) Mechanism of lubrication
  - (i) Composite materials

2. (a) What is strain hardening ? How does it affect the properties of a material ?
- (b) How do you differentiate between elastic and plastic deformation ? 7+7
3. (a) Explain the stress rupture with neat diagram.
- (b) Draw the Iron-Carbon equilibrium design and explain its salient features. 7+7
4. (a) What is Quenching ? Why should quench steel be tempered ?
- (b) What is stainless steel ? Write its composition and applications. 7+7
5. (a) Describe various types of insulators.
- (b) Discuss the various uses of graphite in industry. 7+7
6. (a) How are glass fibres made ? Compare glass fibres with carbon fibres.
- (b) Classify the lubricants. Discuss the applications of semi-solid lubricants. 7+7
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