BME-050

DIPLOMA IN MECHANICAL ENGINEERING (DME)/DMEVI

Term-End Examination

00455   December, 2014

BME-050 : ENGINEERING MATERIALS

Time : 2 hours   *Maximum Marks : 70*

Note : *Question no. 1 is **compulsory**. Attempt any **four** from the remaining 5 questions. All questions carry equal marks.*

1. Write short notes on the following :   7×2=14

    (i)   Hardness

    (ii)   Ductility

    (iii) Normalising

    (iv)   Surface hardening

    (v)   Polymerization

    (vi)   Thin film lubrication

    (vii) Thermosetting plastic

2. With neat sketch, explain Brinell and Rockwell hardness measurement methods in detail.   *14*

3. (a)   Explain the various classifications of plain carbon steel according to carbon percentage and also give their applications.   7

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(b) Enlist the various microstructures that result after cooling eutectoid steel in quenching media. $3\frac{1}{2}$

(c) Explain Ferritic stainless steel in brief. $3\frac{1}{2}$

4. (a) What are abrasives ? Which materials are suitable for abrasive cutting ?

(b) What are voids in grinding wheel ? What role do they play in functioning of the grinding wheel ?

(c) How is rubber obtained and what are the uses of natural rubber ?

(d) What is an adhesive ? Distinguish between structural and non-structural adhesives.

$$4\times3\frac{1}{2}=14$$

5. (a) Clearly bring out the difference between engineering stress and true stress. $3\frac{1}{2}$

(b) Distinguish between resilience and toughness. $3\frac{1}{2}$

(c) Discuss, in detail, the differences between the stress-strain curve for a ductile and brittle material. 7

6. Give the broad classification of lubricants and explain each one of them, in detail. *14*

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