



Printed Pages : 2

ME – 407

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 4047

Roll No.

B. Tech.

(SEM. IV) EXAMINATION, 2006-07

ENGINEERING MATERIALS

Time : 2 Hours]

[Total Marks : 50

- Note :**
- (1) Answer **all** questions.
 - (2) All questions carry **equal** marks.
 - (3) Answer part of the question in sequential order at one place.

- 1** Fill up the blanks : **1×2×5=10**
- (a) i) Metals are normally _____ solids.
ii) Inorganic glasses are _____ solids.
 - (b) i) Usually percentage of carbon in mild steel is _____.
ii) Carbon percentage in gray cast-iron is _____.
 - (c) i) Yield strength of a fine grained metal / alloy is _____ than of coarse grained.
ii) Failure which occurs under repeated stressing is called _____.
 - (d) (i) Polyvinyl chloride is _____ plastics.
(ii) Styrene-butadiene is a _____ rubber
 - (e) (i) Corrosion is defined as destruction of metal resulting from _____ by environment.

(ii) Metal matrix composite materials have been intensely developed for aerospace industries because it possess high _____

2 Answer any **two** of the following : **5×2=10**

- (a) Explain the term “Crystal Lattice”. Describe the type of crystal structures of metallic elements.
- (b) Discuss the major kinds of imperfections in the crystal structure of metals
- (c) Draw the iron-carbon phase diagram and label it completely.

3 Answer any **two** of the following : **5×2=10**

- (a) Explain the purpose and process of annealing treatment.
- (b) Explain the Time-Temperature Transformation (TTT) curves.
- (c) Discuss in detail the effects of alloying element in steel.

4 Answer any **two** of the following : **5×2=10**

- (a) How are wrought aluminium alloys classified.
- (b) Discuss the types, properties and applications of various bearing materials
- (c) Explain intergranular corrosion and its prevention in stainless steel.

5 Answer any **two** of the following : **5×2=10**

- (a) Explain the polymerization processes for different types of plastics.
- (b) Explain plastic deformation and elastic deformation.
- (c) Describe the various types of magnetic behaviour.