

TME-301

1089

**Odd Semester Examination, 2017-18**

**B.TECH. (SEMESTER-III)**

**MATERIAL SCIENCE**

**Time: 03:00 Hours**

**Max Marks : 100**

**Note :** Attempt all questions.

1. Attempt **any four** questions : (5x4=20)
  - (a) What do you mean by Miller Indices? Explain procedure for finding Miller Indices?
  - (b) Write the name of all atomic models and explain any one of them.
  - (c) Differentiate between screw dislocation and edge dislocation.
  - (d) Define APF and show that APF for FCC crystal structure is 0.74.
  - (e) With the help of neat sketch explain different types of crystal structure.
  
2. Attempt **any four** questions : (5x4=20)
  - (a) Explain the procedure for preparing the specimen for micro examination.
  - (b) Draw the properly labeled diagram of Iron-Carbon Equilibrium and explain it.
  - (c) Discuss impact test and creep test. Explain their importance also.
  - (d) With the help of neat sketch explain the stress strain diagram for ductile materials.
  - (e) Elaborate non-destructive testing and their methods.
  
3. Attempt **any two** questions : (10x2=20)
  - (a) What is TTT diagram? Explain briefly with neat sketch.
  - (b) Discuss copper alloys with their characteristics and applications.
  - (c) Explain Austempering and Martempering process with suitable sketch.

TME-301/1600

( 1 )

[P.T.O.]

4. Attempt **any two** questions : (10x2=20)
- (a) What is the difference between hard and soft magnetic material? What are the characteristics and applications of soft magnetic material?
  - (b) Why does electrical conductivity of intrinsic silicon and germanium increase with increasing temperature?
  - (c) Explain Messier effect with their uses.
5. Attempt **any two** questions : (10x2=20)
- (a) Explain methods of processing ceramic materials. Also write application of ceramic materials.
  - (b) Explain factors which determine the mechanical behavior of plastics.
  - (c) How can you classify composite materials? Explain them briefly.

\*\*\*\*\*