Printed Pages : 1 **AG-202**

(Following Paper ID and Roll No. to be filled in your Answer Books)										
PAPER ID :	**Roll No.**									

B.TECH.

Theory Examination (Semester-II) 2015-16

MATERIAL SCIENCE

Time : 3 Hours ***Max. Marks : 100***

SECTION A

1. Attempt all parts. Write answer of each part in short. **(2×10=20)**

a) What is a Unit cell? Explain with example.
b) What is Atomic packing factor?
c) Define Solid solution. What are the types of solid solution?
d) Define crystal lattice. How many types of this are found in metals?
e) Explain the terms: toughness, Hardness
f) Write the applications of Aluminium alloys.
g) What do you mean by quenching.
h) What is case hardening?
i) Give the examples of soft and hard magnetic materials.
j) Explain the term magnetization.

SECTION B

2. Attempt any five questions from this section. **(10×5=50)**

a) Differentiate between the following:
   i) Point defects and line defects.
   ii) Screw dislocation and edge dislocation
b) Draw and explain stress strain diagram for ductile and brittle materials.
c) What are different types of Equilibrium diagrams? Draw and explain Iron Carbon Equilibrium diagram.
d) Explain different types of chemical bonds with suitable examples.
e) Why are metals heat treated? What are the objectives of Annealing and Normalizing? Describe process annealing and full annealing briefly.
f) What are the types of plain carbon steels? Give properties and applications.
g) Explain Meissner effect, Hysteresis, concept of conductor, insulator and semi conductor
h) Compare diamagnetic, paramagnetic and Ferromagnetic materials.

SECTION C

Attempt any two questions from this section. **(15×2=30)**

3. a)What are different types of Cast Irons? Explain with properties and applications.
   b) Write Composition, properties and uses of Duralumin, Gun Metal and Babbit
4. Differentiate p-type and n-type semiconductors. Briefly describe the phenomenon of magnetic hysteresis, and why it occurs for ferromagnetic and ferromagnetic materials.
5. Write note on any two of the following
   a) Magnetic Storages
   b) Time Temperature Transformation (TTT) diagrams
   c) Intrinsic and extrinsic semi-conductor