

R09**Code: 9A03301**

B.Tech II Year I Semester (R09) Supplementary Examinations June 2016

MATERIALS SCIENCE & ENGINEERING

(Common to AE, ME & MCT)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

- 1 (a) Explain the principle of bond formation in solids with suitable examples.
(b) What is dendrite and explain the formation of dendrite.
- 2 (a) Explain the relative valence factor to form the substitutional solid solution.
(b) What is a solid solution, draw and explain the cooling curve of 50% Antimony and 50% Bismuth alloy.
- 3 Explain the experimental methods to find the data for the construction of equilibrium diagrams.
- 4 (a) What effect would the addition of 1% chromium have on the properties of low carbon steel and on high carbon steel?
(b) Explain the purpose of alloying and classify the alloy steels.
- 5 Define critical cooling rate? Explain factors influencing the critical cooling rate?
- 6 How does the addition of lead to brass improve its machinability?
- 7 Explain the following:
(a) Cermet.
(b) Abrasive materials.
- 8 Explain dispersion strengthened composites.
