

R09

Code No: 53018

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, November/December - 2016

METALLURGY AND MATERIAL SCIENCE

(Common to ME, AME)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Determine the grain size using planimetric method.
b) Differentiate between covalent bond and ionic bond. [7+8]
- 2.a) Explain the Hume Rothery's rule with suitable example.
b) Write short notes on electron compound. [8+7]
- 3.a) Draw the phase diagram of Cu-Ni and label all the phases in it. Explain the cooling behavior of 70% Cu-30% Ni alloy.
b) Define allotropy. Explain the allotropy forms of iron. [8+7]
4. Explain the chemical composition, properties and application of the following?
a) Hadfield manganese steels
b) Tool steels. [8+7]
- 5.a) Explain the factors which affect hardenability?
b) Write short notes on cryogenic treatment of alloys. [7+8]
6. Give the classification of titanium alloys. Explain the properties and application for each. [15]
- 7.a) What are the types of glasses? Explain its properties.
b) Explain the properties and uses of SiC which is used as abrasive materials. [7+8]
8. Write short notes on the following:
a) Stirr casting of making composites
b) Types of fiber's. [8+7]

---ooOoo---