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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations Feb-2021

MATERIAL SCIENCES AND METALLURGY

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Give a brief note on intermediate alloy phases 6M
b Explain the Electron compound? 6M

OR

- 2 What is the Necessity of alloying? 12M

UNIT-II

- 3 a What is Phase? What are different types of phase diagram? 4M
b Define invariant reactions in phase Diagram with an example 8M

OR

- 4 a Explain the phase transformation in solid state 6M
b Draw the allotropy of iron and their properties. 6M

UNIT-III

- 5 a What is steel? What are the classifications of the steels? 6M
b Explain the structure and properties of Spheriodal graphite cast iron? 6M

OR

- 6 a What is Effect of alloying elements on Iron – Iron carbon system? 5M
b Write Classification of Steels 7M

UNIT-IV

- 7 a Discus in details about heat treatment process of plastic 6M
b What is cryogenic treatment? How is it done for the alloys? 6M

OR

- 8 Explain the below 12M
i) Tempering ii) Hardenability

UNIT-V

- 9 a What are cermet? what are their properties? 6M
b How the cermet manufactured? Give Examples 6M

OR

- 10 a What is the polymer? Explain the polymer matrix composite 8M
b Explain about polymer matrix applications 4M

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