

R16

Code No: 138AH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, July - 2021

ADVANCED MATERIALS TECHNOLOGY

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

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1. Classify plain carbon steels. Write the properties and applications of plain carbon steels. Also mention the limitations of plain carbon steels. [15]
2. What do you mean by stainless steels? How they are classified? Explain the chemical composition, properties and applications of stainless steels. [15]
- 3.a) With the help of TTT diagram, explain hardening process of steel.
b) With the help of TTT diagram, explain austempering and martempering of steel. [7+8]
- 4.a) With the help of a neat sketch, explain induction hardening process.
b) Explain the carbonitriding and cyaniding processes. [7+8]
5. How brasses are classified? Explain the chemical composition, properties and application few important brasses. [15]
- 6.a) Explain in brief the dispersion strengthened composites.
b) Explain various properties and applications of metal – polymer composites. [7+8]
7. Explain the effects of degradation and corrosion on biodegradable materials. [15]
8. Explain various radiation proof materials and their advantages and disadvantages. [15]

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