

Code No: 153BC**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year I Semester Examinations, October - 2020****MATERIAL SCIENCE AND METALLURGY****(Common to ME, MCT)****Time: 2 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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1. What is dislocation strengthening mechanism? Explain. [15]
2. Distinguish between white cast iron and malleable cast iron with respect to their composition, microstructure, properties and applications. [15]
3. Distinguish between the following with respect to composition, microstructure and properties: Ferrite, Austenite, Pearlite, Ledeburite, Cementite and Martensite. [15]
4. What is Bainite? Discuss the formation of bainite from austenite. [15]
5. Discuss the Jominey end quench test done for determination of hardenability of the steel. [15]
6. Discuss the following surface hardening methods:
a) Induction hardening
b) Plasma hardening. [15]
7. What are tool steels? Explain the composition, microstructure and properties of any three types of tool steels. [15]
8. Distinguish between following:
a) Ductile irons and grey cast irons
b) Tool steels and Die steels. [15]

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