

# Briefly explain: engineering materials week

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**ASSIGN  
BUSTER**

Briefly explain why ferritic and austenitic stainless steels are not heat treatable. Answer: Ferritic and austenitic stainless steels are not heat treatable since "heat treatable" is taken to mean that martensites may be made to form with relative ease upon quenching austenite from an elevated temperature.

1.2 It is possible to produce cast irons that consist of a martensitic matrix in which graphite is embedded in either flake, nodule, or rosette form.

Briefly describe the treatment necessary to produce each of these three macrostructures. Answer: For graphite flakes, gray cast iron is formed which is then heated to a temperature at which the ferrite transforms to austenite; the austenite is then rapidly quenched, which transforms to martensite. For graphite nodules and rosettes, nodular and malleable cast irons are first formed which are then austenitized and rapidly quenched. 1.3 What is the main difference between brass and a bronze?

Answer: Brasses ironical alloying element is zinc, bronzes are alloyed with other elements such as tin, aluminum, silicon, or nickel. 1.5 On the basis of melting temperature, oxidation resistance, yield strength, and degree of brittleness, discuss whether it would be advisable to hot work or to cold work (a) aluminum alloys, and (b) magnesium alloys. Answer: Most aluminum alloys may be cold-worked since they are ductile and have relatively low yield strengths. Magnesium alloys are normally hot-worked since they are quite brittle at room temperature.