

**ME 8491 Engineering Metallurgy**  
**Important 2mark questions**

**Unit I**

1. State what is a solid solution in alloys and with the help of neat sketches explain the isomorphous, eutectic, eutectoid, peritectic and peritectoid reaction of alloys.
2. With the help of a neat sketch of a Iron-carbon diagram for steel, explain the various phases in the iron-carbon phase diagram.

**Unit II**

1. Though the polymers are neither as strong nor as stiff as metals, why are they used largely in engineering applications? Explain in detail the property and application of any five commonly used Engineering Polymers.
2. Explain in detail various types of composites.

**Unit III**

1. A gears surface should resist wear and tear, but the core material remains soft to withstand the shock loads. Explain in detail the various types of heat treatment process suitable to get such a property in the gear.
2. What will be the resultant microstructure and hardness of a 0.76% carbon steel which is heated to approximately 800<sup>0</sup>C followed by air cooling, furnace cooling, oil quenching and water quenching?

**Unit IV**

1. Sketch the microstructure in different types of cast iron and explain in detail how the affects the property of cast iron.
2. Explain in detail the effect of major alloying element in copper alloys, state the name, properties and applications of those alloys formed.

**Unit V**

1. Draw neatly the stress-strain diagram of a ductile material and discuss the salient mechanical properties and features of the curve along with their physical significance.
2. Define fatigue and discuss briefly the steps involved in the construction of a S-N curve.