

**Advanced Thermodynamics**  
**Prof. B.S. Murty**  
**Department of Metallurgy and Material Science Engineering**  
**IIT Madras**

**Errors in drawing phase diagrams, Fe-C vs. Fe-Fe<sub>3</sub>C phase diagram**

**Questions:**

1. Why do intermetallic compounds melt and solidify at fixed temperatures?
2. Why does a pure metal melt at a fixed temperature?
3. Why does the extension of a phase boundary need to be extended only into a two phase field?
4. What are the differences in the Fe-C and Fe-Fe<sub>3</sub>C phase diagrams?
5. Fe-C and Fe-Fe<sub>3</sub>C phase diagrams are different?