**R09**

**Code No: C2106**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**M.Tech I Semester Examinations March/April-2011**
**CRYOGENIC ENGINEERING**
**(THERMAL ENGINEERING)**

**Time: 3hours** **Max.Marks:60**

**Answer any five questions**
**All questions carry equal marks**
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1. a) Derive the minimum work required for liquification.
   b) List out the desired properties of cryogenic fluids. [6+6]

2. a) Discuss any two methods to produce low temperature.
   b) Explain any one liquification system for non Inert gases. [6+6]

3. a) Explain the working of liquification system for Inert gases.
   b) Discuss the significance of compressors, expanders and heat exchanges in a liquification system. [6+6]

4. a) Explain the working of Gas-Separation systems.
   b) Explain the principles and properties of gas mixtures. [6+6]

5. a) Discuss the working of gas purification system.
   b) Discuss the principles of gas separation. [6+6]

6. a) Explain the working of cryogenic refrigeration system.
   b) Discuss the principles of storage and handling cryogenic fluid. [6+6]

7. a) Distinguish between solid, liquid and gaseous cryogenic fluids.
   b) Explain the working of cryocoder. [6+6]

8. a) List out the applications of cryogenic refrigeration systems.
   b) Discuss the process of In-flight air separation and collection of LOX. [6+6]

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