CH1012 Tutorial 5

Name:

1. The vapour pressure of *n*-butane is 3.41 x 10^5 Pa at 30^{o}C and 8.95 x 10^5 Pa at 70^{o}C. Calculate ΔH_{vap} (*n*-butane) in this temperature range.

2. Describe the main features of the **Hall-Heroult process** for the production of aluminium metal from alumina.

3. Explain the characteristics of **interstitial alloys** and **heterogenous alloys** using examples to illustrate your answer.

4. What are the physical properties of an **azeotropic mixture**?

5. The **van der Waal's equation** accounts for the behaviour of a real gas. What are the van der Waal's forces and how do they relate to this equation?

6. Which **quantum numbers** define the energy of a $3dz^2$ orbital?
What is the value of the azimuthal quantum number for this orbital?