Solutions (Assignment Week-7)

A-1
At very high pressure, molecules are almost touching and hence repulsions are dominant. (B)

A-2
\( \beta \)-Easacity coefficient indicates extent of deviation of the gas from ideality. (D)

A-3
At very low pressure gases behave ideally, hence fugacity can be replaced by pressure. (B)

A-4
\[ ds \geq \frac{dq}{T} \]
For irreversible change, \( ds > \frac{dq}{T} \)

Since \( dq = 0 \), \( \Delta S(\text{system}) > 0 \) and \( \Delta S(\text{surr}) = 0 \) (D)

A-5
\( \Delta G = \) Max now \( p-V \) work available from the system
\( \Delta A = \) Max work available from the system

\( \Delta A - \Delta G \) represents maximum expansion work obtainable from the system. (B)

A-6
Endothermic reactions are driven by increase in entropy of the system. (B)
By fundamental equation \( dU = TdS - pdV \)

\[
\left( \frac{\partial U}{\partial S} \right)_{T} = T \quad (A)
\]

\( dG = Vdp - SdT \)

\[
\left( \frac{\partial G}{\partial p} \right)_{T} = V \quad (B)
\]

If liquid interact more strongly, negative deviations from ideality are shown, (B)

With specific reference to Raoult's Law.

Adiabatic demagnetization is used to achieve extremely low temperature, (B)