Quiz 5.1 – Mixtures

Name: _____

The Gibbs-Duhem Equation

The reaction A $\longrightarrow$ B is in a non-equilibrium state with 0.54 moles of A and 0.72 moles of B.

If $\mathrm{d}\mu_B = 4.5\frac{J}{mol}$, find $\mathrm{d}\mu_A$

Which direction will the reaction shift in order to reach equilibrium?

Thermodynamics of Mixing

4.2 moles of helium are mixed under constant temperature and pressure with 2.7 moles of argon at a temperature of 298 K

Find ΔG_{mix} for this process

Find ΔS_{mix} for this process

Liquid Phase Mixtures

Find the change in chemical potential for both solvent and solute when 0.35 mol of acetone dissolve into 2.5 mol of chloroform

Use the table below to estimate the partial pressures for each component and the total solution pressure

	CH_2O	$CHCl_3$
$p^\star\ (kPa)$	46	35
$K_H\ (kPa)$	23	22

O Captain! My Captain!

By Walt Whitman

O Captain! my Captain! our fearful trip is done,
The ship has weather'd every rack, the prize we sought is won,
The port is near, the bells I hear, the people all exulting,
While follow eyes the steady keel, the vessel grim and daring;
But O heart! heart! heart!
O the bleeding drops of red,
Where on the deck my Captain lies,
Fallen cold and dead.

O Captain! my Captain! rise up and hear the bells;
Rise up—for you the flag is flung—for you the bugle trills,
For you bouquets and ribbon'd wreaths—for you the shores a-crowding,
For you they call, the swaying mass, their eager faces turning;
Here Captain! dear father!
This arm beneath your head!
It is some dream that on the deck,
You've fallen cold and dead.

My Captain does not answer, his lips are pale and still,
My father does not feel my arm, he has no pulse nor will,
The ship is anchor'd safe and sound, its voyage closed and done,
From fearful trip the victor ship comes in with object won;
Exult O shores, and ring O bells!
But I with mournful tread,
Walk the deck my Captain lies,
Fallen cold and dead.