General Physical Chemistry - CH1201

Assignment 5 (PD) **Date: 03/06/2022**

Answer All Questions:

1. Calculate the increase in vapour pressure of water per atmosphere rise in external pressure at 10 ^{o}C.
2. Can the Nematic Liquid Crystals be observed by X-ray?
3. Find the inside diameter of a glass capillary in which water shows a capillary rise of 88 mm at 25 ^{o}C. [Given: Surface tension of water at 25 ^{o}C = 72 dyne/cm, density of water = 1 g/cc, acceleration due to gravity, g = 980 cm/sec^2].
4. What is the excess pressure inside a soap bubble with a radius of 0.015 m and the surface tension of 0.03 N/m?
5. Explain the effect of temperature on surface tension and viscosity (for liquid).
6. The partial pressure of argon in the atmosphere is 0.0093 atm. What is the argon pressure at 50 km if the temperature is 20 ^{o}C? (Given: molar mass of argon = 0.0399 kg/mol and g = 9.807 m/sec^2).