S. 6 CORONA HOLIDAY CHEMISTRY TEST 1

TOPIC: <u>MOLARITY VERSUS MOLALITY</u>

SUMMARY: $Molarity \quad = \frac{moles\ of\ solute}{in\ a\ litre\ of\ solution}$,

$Molality = \frac{number\ of\ moles\ of\ a\ solute}{1\ kg\ of\ solvent}$, *capital M is a unit for molarity*

while small m is for molality

1. 32.5 g of sodium fluoride was dissolved in 425g of water. Calculate the molality of the solution. (Na=23, F=19) *ANS: 1.82m*

2. 32g of sodium hydroxide is dissolved in enough water to make 325cm³ of solution. Calculate the molarity of the solution. (Na=23, O=16, H=1) *ANS: 2.46M*

3. Calculate the Molality of a 0.425M aqueous solution of potassium hydroxide having a density of 1.13g/cm³ (K=39, O=16, H=1) *ANS: 0.3843m*

4. Calculate the molality of a 28% HI acid solution (H=1, I=127). *ANS: 3.04m*

5. Determine the molarity of a 31% HCl solution having a density of 1.2g/cm³. *ANS: 10.2M*

6. Calculate the molarity of a 0.51m KI aqueous solution having a density of 1.3g/cm³(K=39, I =127) *ANS; 0.611M*

7. Determine the percentage by mass of a 0.489mKCl solution. (K=39, Cl=35.5) *Ans: 3.52%*

8. Determine the percentage by mass of a 1.25m solution of HBr having a density of 1.27g/cm³. (H=1 , Br=80 C) *Answer: 9.18%*

9. Calculate the density of a 0.845m solution of sulphuric acid which is 0.821M (H=1, S=32, O=16) *Answer: 1.052g/cm³*

10. 74.5g of $CaCl_2$ is dissolved in 560g of water. The density of the solution is 1.15g/cm³. Calculate the molarity of the solution. (Ca=40, Cl=355) *.ANS: 1.22M*