

15. 06. 2017

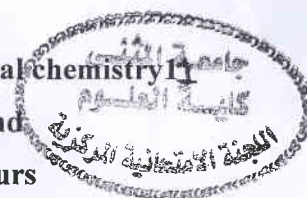


Sub: Physical chemistry II

Stage: second

Time: 3 Hours

Date: / /2017



((Assessment of the final exam for the second semester))  
Academic year 2016-2017

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**Q1/ A- Explain the following terms:**

(4 mark)

- 1- Differential heat solution    2- Enthalpy of atomization    3- Trowtons relation  
4- Active mass law.

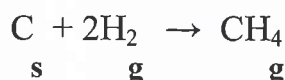
**B-** If the vapor pressure of water at 25C° and 100C° are 634 atm and 760 atm respectively.

Calculate the heat of vaporization per mol.

(6 mark)

**Q2/ Calculate heat at sublimation graphite for the reaction :**

(10mark)



From the following data:



If you know bond energies H-H = 436 , C-H = 414 KJ

**Q3/ A- Prove that :  $\Delta G = \Delta A + \Delta nRT$**

(4 mark)

**B-** Calculate the entropy change when argon at 25C° and 1 atm in a container of volume 500

cm<sup>3</sup> is allowed to expand 1000cm<sup>3</sup> if you know CV for argon is (3/2 R)

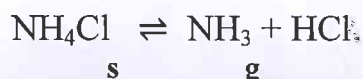
(6 mark)

**Q4/ Answer the following :**

(10mark)

1) if you know  $K_c = 1.5$  at 1000C° for reaction  $C + CO_2 \rightleftharpoons 2CO$  . Calculate pressure for CO knowing partial pressure for CO<sub>2</sub> is 0.1 atm.     $\underset{s}{C}$      $\underset{g}{CO_2}$      $\underset{g}{CO}$

2) find out the number of degrees of freedom in the following system.



3) A solution of Glycol containing 2.8 mol per 2 liter has osmotic pressure of 51.8 atm at 10C . what is the molecular mass of glycol?

HASR