



Philadelphia University
Faculty Of Science
Basic Science Department
Practical General Chemistry
0212102 B

Second semester
2015/2016
Midterm Exam
60 min
Date 21/4/2016

Student Name : -----
Registration no. :-----

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Question1: Fill in the Blanks with the suitable answer:

Consider the following flasks:

(Note : the maximum solubility of KBr at 25°C is 678g/ L solution).

(Molar Mass KBr = 119.0 g/mol)

 25°C #1	 # 2	 # 3
1.170 M KBr _(solution)	5.69 M KBr _(solution)	7.00 M KBr _(solution)

a- Which of the above flasks contain a saturated solution? _____

b- Which of the above flasks contain a dilute solution? _____

c- What is “M” an abbreviation for? _____ What are the units of “M”? _____

d- What is the name of the glassware in the above illustration? _____

e- The solute is _____, the solvent is _____ in the above flasks.

Question 2:

Given the following data for the hydrate $\text{MgSO}_4 \cdot X \text{H}_2\text{O}$

- Mass of empty crucible -----40.60 g
- Mass of empty crucible + Hydrates -----42.02 g
- Mass of empty crucible + anhydrous -----41.35 g
- (Mwt anhydrous : 120.5 g/mol , (Mwt H_2O : 18 g/mol)

1- Calculate the mass percent of anhydrous :

- a) 47.2 % b) 52.8 % c) 46.9 % d) 72.6%

2- Calculate the value of " X"

- a) 2 b) 4 c) 6 d) 7

Question 3:

A student has obtained the following set of data about density measurements of a solid:

- Mass of an empty beaker = 84.35 g.
- Mass of a beaker + metal pieces = 98.25 g.
- Initial water level in the graduated cylinder = 55.00 mL.
- Final water level in the graduated cylinder with the metal pieces = 57.3 mL.

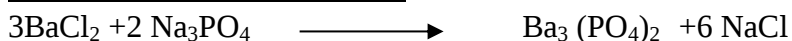
The density (g/cm^3) of the solid is:

- a. 6.00 b. 5.90 c. 6.10 d. 6.04

Question 4:

In an experiment, a student dissolved a 1.30 g BaCl_2 . (molar mass = 244 g/mol), with Na_3PO_4 (molar mass = 380 g/mol) . Calculate the number of moles of Na_3PO_4 used to complete the reaction:

The BALANCED equation is:



- a. 0.0035 b. 0.0066 c. 0.007 d. 0.0025

Question 5:

If 10.0 ml of 2.5 M KBr solution was diluted to 100 ml, what is the Molarity of the solution?

- a. 0.17M b. 0.25M c. 25M d. 2.5M

Question 6:

The mass percent of calcium oxide if 70.0 g is dissolved in 500 g of water is:

- a. 10.7% b. 14.0% c. 12.3% d. 40%

Question 7:

Which of the following statements is **not correct** concerning lab safety rules?

- a. Dispose of all waste in an appropriate manner: Many chemicals need to be disposed off in special containers found in the fume hoods; solids should not be thrown into the sink.
- b. Fire alarms, fire extinguishers, showers, and eye washing device, are examples of safety equipment's in your lab.
- c. To avoid chemical loss, unused chemicals should be returned to the stock bottles.
- d. Long hair should be tied back during lab periods.

Question 8:

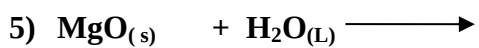
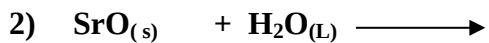
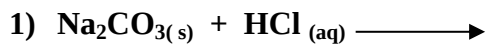
0.424 g of iron powder is burned in an oxygen atmosphere, 0.606 g of a reddish brown oxide is obtained. The empirical formula of the iron oxide is:

(M.W of Fe = 55.847, M.W of O= 16)

- a) Fe₂O₃ b) Fe₂O₅ c) FeO₂ d) FeO

Question 9:

Complete and balance the following chemical equations:

**Question 10:**

Classify each the following substance as strong, weak or nonelectrolyte:

NaCl, Tap H_2O , HCl, CH_3COOH , Sugar, CuSO_4 , NaOH

Strong electrolyte	Weak electrolyte	Non electrolyte