



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

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 NaNO_3 at 20°C is 100g/ L solution).

(Molar mass $\text{NaNO}_3=85.0 \text{ g/mol}$)

			
0.100 M NaNO_3 (solution)	1.00 M NaNO_3 (solution)	1.17 M NaNO_3 (solution)	3.00 M NaNO_3 (solution)

- a- Which of the above flasks contain a diluted solution? _____
- b- Which of the above flasks contain a saturated 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 H_2O :

- 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 = 66.7 g.
- Mass of a beaker + metal pieces = 70.9 g.
- Initial water level in the graduated cylinder = 55.0 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. 1.83 b. 2.20 c. 3.23 d. 4.20

Question 4:

In an experiment, a student dissolved a 5.0 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. 0.014 c. 0.013 d. 0.13

Question 5:

If 100 ml of 2.5 M KBr solution was diluted to 150 ml, what is the Molarity of the solution?

- a. 0.17M b. 1.0 M c. 1.7 M d. 2.5 M

Question 6:

The mass percent of calcium oxide if 7.0 g is dissolved in 500 g of water is:

- a. 1.4 % b. 14.0% c. 30% d. 40%

Question 7:

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

- a. Lab instructor must be notified if there is a mercury spill due to a broken mercury thermometer.
- b. The wearing of shorts, tank and sandals is permitted in the laboratory.
- c. Fire alarms, fire extinguishers, showers, and eye washing device, are examples of safety equipment's in your lab.
- d. Clean pipets and droppers cannot be inserted into the original reagent bottle.

Question 8:

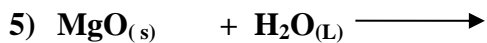
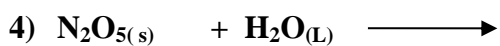
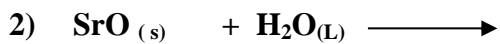
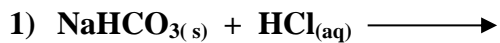
0.175 g of Aluminum powder is burned in an oxygen atmosphere, 0.331 g of a oxide is obtained. The empirical formula of the aluminum oxide is:

(M.W of Al = 26.98, M.W of O= 16)

- a) AlO_3 b) Al_2O_5 c) AlO_2 d) Al_2O_3

Question 9:

Complete and balance the following chemical equations:

**Question10:**

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

MgCl₂, Distilled H₂O, HBr, CH₃COOH, Sugar, CuSO₄, NaOH

Strong electrolyte	Weak electrolyte	Non electrolyte