South West Academy Jemo High School

Grade 12 Chemistry Unit 5 Worksheet

Directions: *Read the handout on unit 5 and complete the worksheet. Unless we say otherwise, you will submit each assignment in softcopy and upload to the page. Do not forget to write your name and section.*

Due Date : *Friday , May 15th at 10:00 AM. Late submissions will be accepted but penalized 3 points.*

Item I. Multiple Choice Questions

1. A number of elements are available in earth's crust but the first two most abundant metals are

A. Na and Al B. Al and Fe C. Fe and Cu D. Si and Al

2. The difference between the phosphorous cycle and carbon cycle lies in the fact that

A. phosphorous cycle does not include a gaseous phase but carbon cycle does

B. phosphorous does not enter living entities but carbon enters

C. phosphorous cycle includes a solid phase, carbon cycle does not.

D. As compared to the carbon cycle, the rate at which phosphorus circulates is faster.

3. Which one of the following is incorrect about nitrogen cycle?

A. The conversion of nitrogen to nitrogenous compounds is called nitrogen fixation.

B. Plants absorb N_2 in the form of nitrites, nitrates and ammonium.

C. Plants cannot absorb molecular N_2 from the atmosphere because N_2 has triple bonds making it highly stable.

D. Industrial nitrogen fixation is accomplished by Ostwald process.

4. Which of the ores mentioned can be concentrated by magnetic separation method?

A. Fe_3O_4 B. NaCl C. Bauxite D. ZnS

5. Zone refining is based on the principle that _____.

A. impurities of low boiling metals can be separated by distillation.

B. impurities are more soluble in molten metal than in solid metal.

C. different components of a mixture are differently adsorbed on an adsorbent.

D. vapors of volatile compound can be decomposed in pure metal.

6. Electrolytic reduction is used to produce which of the following metals?

A. Cu and Zn B. Sn and Pb C. Fe and D. Mg and Al

7. Extraction of gold involves leaching the metal with CN^- ion. The metal is recovered by _____.

A. displacement of metal by zinc from the complex ion.

B. roasting of metal complex.

C. calcination followed by roasting.

D. thermal decomposition of metal complex.

8. Which one of the following options is incorrect?

A. lead can be extracted by self-reduction.

B. Zinc shows amphoteric properties.

C. Silicon is finally purified by zone refining.

D. Borax, trona and rock salt are the main ores of calcium.

9. Which of the following ores are concentrated by froth floation?

A. Haematite B. Galena C. Sodium amalgam D. magnetite

10. All of the following reactions occur during roasting except?

A. $CaCO_3 \rightarrow CaO + CO_2$

B. $2FeS_2 + \frac{11}{2}O_2 \rightarrow Fe_2O_3 + 4SO_2$

C. $2PbS + 3O_2 \rightarrow 2PbO + 2SO_2$

D. $ZnS + \frac{3}{2}O_2 \rightarrow ZnO + SO_2$

Item II. Short Answer Questions

1. Differentiate between a mineral and an ore.

2. How can you separate alumina (Al_2O_3) from silica present in bauxite ore? Write the chemical equations for the reactions involved.

3. Name one chief ore each of copper and aluminium. Name the method used for the concentration of these two ores.

4. Explain why only sulphide ores are concentrated by 'froth floatation' process?

5. How is chemical reduction different from electrolytic reduction? Name a metal each which is obtained by

(i) electrolytic reduction, (ii) chemical reduction.

6. Write a balanced chemical equation for the formation of ammonia by Haber process? What conditions are required to get high yield of ammonia using Le Chatelier's principle?