



Final Written Exam of 1st term (2011-2012)
For
Students of 2nd year of Bio./Chem. Program.

Answer all the following Questions

Question 1:

A) Balance the following equations:

- $\text{Al} + \text{Fe}_3\text{O}_4 \longrightarrow \text{Al}_2\text{O}_3 + \text{Fe}$.
- $\text{Ca}(\text{OH})_2 + \text{H}_3\text{PO}_4 \longrightarrow \text{Ca}_3(\text{PO}_4)_2 + \text{H}_2\text{O}$.
- $\text{Na}_2\text{S}_2\text{O}_3 + \text{I}_2 \longrightarrow \text{NaI} + \text{Na}_2\text{S}_4\text{O}_6$.
- $\text{P}_4\text{O}_{10} + \text{H}_2\text{O} \longrightarrow \text{H}_3\text{PO}_4$

B) Write briefly about:

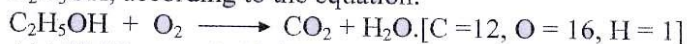
- The postulates of Dalton's atomic theory.
- Electrolyte.
- Compound and mixture.

Question 2:

Write, briefly, about the relationship between any life language and the chemistry language...Please give examples.

Question 3:

A) How many grams of oxygen are needed to burn 1.80 mole $\text{C}_2\text{H}_5\text{OH}$, according to the equation:



B) $\text{Al} + \text{H}_2\text{SO}_4 \longrightarrow \text{Al}_2(\text{SO}_4)_3 + \text{H}_2$. $[\text{Al} = 27, \text{S} = 32]$

If 20 gms. (AL) is put into 115 gms. (H_2SO_4):

- Balance, carefully the equation
- Which is the limiting reactant?
- How many moles of (H_2) will be formed?
- How many grams of excess reactant will be left over?
[AL = 27, S = 32, O = 16, H = 1].

Answer the following questions :-

- 1) Write the postulates of kinetic theory of gases .
- 2) Compare between ionic forces and covalent bonding in solids .
- 3) Write two methods for measurements of vapour pressure .
- 4) write properties of ideal solutions .
- 5) Define:

- | | |
|------------------|-------------------------|
| 1) Boyle's law | 2) critical temperature |
| 3) Specific heat | 4) Boiling point |
| 5) Solubility | 6) Molality |

6) Put the mark (✓) or (×) on the following :-

- 1- liquids have definite volume .
- 2- Molecules of gas have attraction on each other .
- 3- Crystalline solid has a sharp melting point .
- 4- Super saturated solution is stable .
- 5- There is attraction forces between molecules of ideally binary solution .