UNITED NATIONS SCHOOL I.E.D.

PEI: COMPREHENSIVE TRAINING OF COMPETENT ENTREPRENEURIAL LEADERS, WITH DEMOCRATIC, TECHNOLOGICAL, CULTURAL AND SPORTS PRINCIPLES

MOTTO: "EDUCATION, SCIENCE, CULTURE AND SPORT TO TRANSCEND"

_____

PREPARATION WORKSHOP FOR THE THIRD PERIOD

CHEMISTRY

TENTH GRADE

TEACHER HEISEL QUESADA

The preparation workshop must be carried out in the Chemistry notebook as a requirement to take the competency test

Delivery date november 8

USE THE FOLLOWING INFORMATION FOR QUESTIONS 1 TO 10

The following table shows the density values of three substances.

Sustancias	Densidad a 25℃ (g/ml)
Tolueno	0,87
Ácido acrílico	1,06
Agua	0,99

Different volumes of each liquid are placed in four containers as shown in the drawing.

|			
1 ml de tolueno	2 ml de agua	1 ml de ácido acrílico	2 ml de tolueno
I	II	III	IV
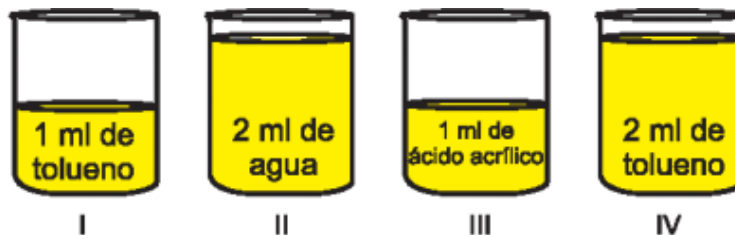
1. Which container has less mass?
2. Is it correct to say that containers II and IV have the same mass?
3. Which is the container with the most mass?
4. What can be concluded from container I with respect to III?
5. If the three substances are mixed in a container, how would they be located?
6. How does density influence the mass of substances?
7. How can the relationship between mass and density be used in everyday situations?

8. What is the relationship between the density of a substance and its physical state (solid, liquid, gas)?
9. If two containers have the same density but different volumes, what would be the difference in their masses?
10. How could the difference in masses between containers with different substances be explained?

ANSWER QUESTIONS 11 TO 20 ACCORDING TO THE FOLLOWING INFORMATION

For the formation of water, hydrogen and oxygen are needed according to the following equation
$$2H_2 + O_2 \rightarrow 2H_2O$$
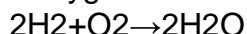
11. Given the above equation, if you have 4 moles of H_2, how many moles of O_2 would you need to complete the reaction?
12. If 2 moles of H_2 react, how many moles of H_2O will be produced?
13. If you have 16 grams of O_2 available, how many grams of H_2 will it take to fully react?
14. If 18 grams of H_2O water are produced, how many moles of H_2 were used in the reaction?
15. How much oxygen O_2 in grams would it take to fully react with 4 grams of H_2?
16. If you have 3 moles of O_2, how many moles of H_2 would be needed for the reaction to be complete?
17. If 36 g of water is produced in the reaction, how many grams of O_2 were used?
18. Given the above equation, if you have a limited amount of H_2, what is this reactant called in the reaction? What is its function?
19. In the hydrogen combustion equation, if you have twice as much O_2 as H_2, what will happen to the O_2?
20. How many grams of water will be produced if 4 grams of H_2 are burned with enough O_2?

ANSWER QUESTIONS 21 TO 25 ACCORDING TO THE FOLLOWING INFORMATION
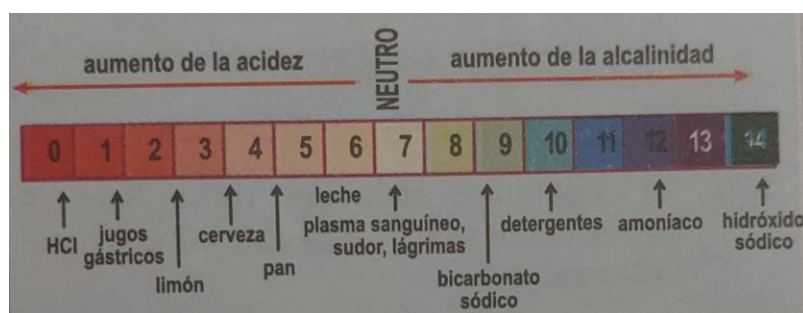
21. What happens to the pH if baking soda is added to beer? Justify your answer
22. What to add to milk to lower pH
23. Write 3 statements from the graph
24. Type the pH of the substances in the graph from highest to lowest and write whether they are acids, bases, or neutrals
25. Check the properties of 3 acidic, 3 basic and 3 neutral substances in everyday life and their application

ANSWER QUESTIONS 26 TO 30 ACCORDING TO THE FOLLOWING INFORMATION

The following table presents the solubility (S) of NaNO3 at different temperatures (T):

Temperature in ºC	Solubility g. $NaNO_3$ / 100 g H_2O
10	80
20	88
30	96

26. Make a graph that represents the previous table
27. How does the solubility of NaNO3 in water change when the temperature increases from 10°C to 30°C?
28. If you have 100 g of water at 20°C, how many grams of NaNO3 can be completely dissolved?
29. At 10°C, what is the maximum amount of NaNO3 that can be dissolved in 50 g of water?
30. If you have a saturated solution of NaNO3 at 30°C and cool it to 10°C, what will happen to the excess solute?