



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

ELEVENTH GRADE

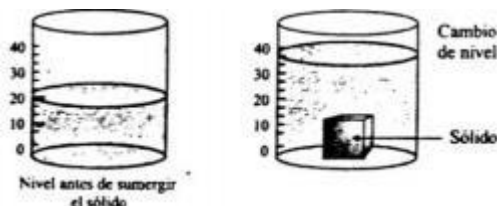
TEACHER HEISEL QUESADA

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

Delivery date november 8

ANSWER QUESTIONS 1 TO 5 WITH THE FOLLOWING INFORMATION

One of the ways to determine the volume of a solid is by immersing it in a burette or graduated container containing water, as shown in the figure.



1. Write a hypothesis from the information given
2. What happens to the volume of water when submerging a solid? Justify your answer
3. If the solid decays in water, what happens to the volume measurement?
4. If the water level is 50 ml before submerging a solid and after submerging it is 60 ml, what is the volume of the solid?

What happens if the solid has a density lower than that of water?

ANSWER QUESTIONS 6 TO 11 WITH THE FOLLOWING INFORMATION

Gas laws describe the behavior of gases under different conditions of pressure, volume, and temperature. Boyle's Law states that the volume of a gas is inversely proportional to pressure, as long as the temperature is constant. This means that when the pressure of a gas increases, its volume decreases

On the other hand, Charles' Law indicates that the volume of a gas is directly proportional to its temperature, as long as the pressure is constant. In this case, when the temperature of a gas increases, its volume also increases. Finally, the Gay-Lussac Law states that the pressure of a gas is directly proportional to its temperature, as long as the volume is constant.

These laws are fundamental to understanding everyday phenomena such as the inflation of balloons, the operation of internal combustion engines, and the expansion of gases in changing atmospheres.

5. What does Boyle's Law establish?
6. Which law describes the relationship between volume and temperature of a gas at constant pressure?
7. If the pressure of a gas decreases and the temperature remains constant, what happens to the volume according to Boyle's Law?
8. What gas law helps explain why a tire can explode if it overheats?
9. What law explains why an aerosol can explode if it gets too hot?
10. Give 5 examples of each of the gas laws applied to everyday life

ANSWER QUESTIONS 11 TO 15 WITH THE FOLLOWING INFORMATION

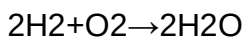


A balloon containing a constant amount of gas is found above ground as shown in the image. By means of the flame the gas increases its temperature. The fabric of which the balloon is made is very elastic in such a way that it stretches very easily, which ensures that the pressure inside the balloon is equal to the atmospheric pressure

11. If you inflate a balloon and heat it up, according to Charles' Law, what will happen to the volume of the balloon?
12. What law applies when a gas changes volume when the temperature varies while keeping the pressure constant?
13. If the pressure is kept constant and the temperature of a gas increases, according to Charles' Law, how will the volume of the gas be affected?
14. According to Charles' Law, if a gas is at a temperature of 300 K and rises to 600 K, what will happen to its volume, assuming the pressure is constant?
15. What would happen if the fabric of the balloon was not elastic?

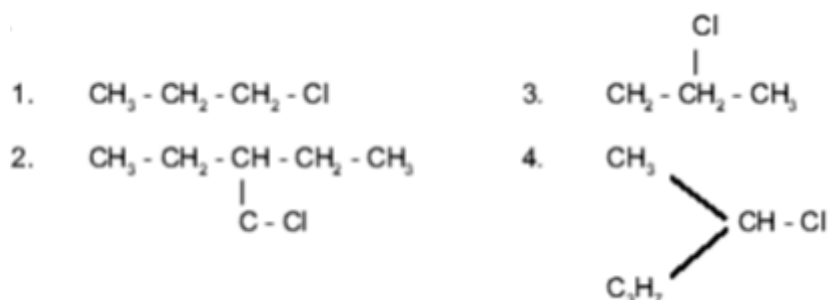
ANSWER QUESTIONS 16 TO 25 WITH THE FOLLOWING INFORMATION

For the formation of water, hydrogen and oxygen are needed according to the following equation



16. Given the above equation, if you have 4 moles of H₂, how many moles of O₂ would you need to complete the reaction?
17. If 2 moles of H₂ react, how many moles of H₂O will be produced?
18. If you have 16 grams of O₂ available, how many grams of H₂ will it take to fully react?
19. If 18 grams of H₂O water are produced, how many moles of H₂ were used in the reaction?
20. How much oxygen O₂ in grams would it take to fully react with 4 grams of H₂?
21. If you have 3 moles of O₂, how many moles of H₂ would be needed for the reaction to be complete?
22. If 36 g of water is produced in the reaction, how many grams of O₂ were used?
23. Given the above equation, if you have a limited amount of H₂, what is this reactant called in the reaction? What is its function?
24. In the hydrogen combustion equation, if you have twice as much O₂ as H₂, what will happen to the O₂?
25. How many grams of water will be produced if 4 grams of H₂ are burned with enough O₂?

ANSWER QUESTIONS 26 TO 27 WITH THE FOLLOWING INFORMATION



26. Performs the structural and condensed formula of the previous compounds
27. Write down which compounds are the same. Justify your answer.

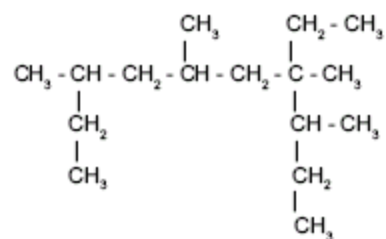
ANSWER QUESTIONS 28 AND 29 WITH THE FOLLOWING INFORMATION

The organic alcohol function is characterized by presenting a hydrogen atom attached to an oxygen atom and the latter attached to a carbon atom by means of simple bonds. In accordance with the above

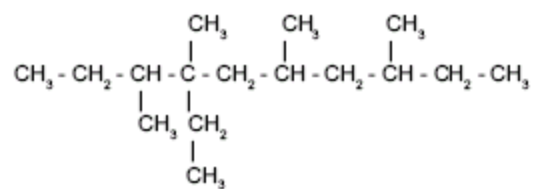
28. Make the three formulas for 5 alcohols
29. Write down the physical and chemical properties of alcohols

ANSWER QUESTION 30 WITH THE FOLLOWING INFORMATION

One of the characteristics of organic compounds is that they have primary carbons (bonded to one carbon atom), secondary carbons (bonded to two carbon atoms), tertiary carbons (bonded to 3 carbon atoms), and quaternary carbons (bonded to 4 carbon atoms).



Z



Y

30. According to the above information for compounds Z and Y, it encloses primary carbons in a red circle, secondary carbons in a blue circle, and tertiary carbons in a green circle