This is a Class 1 exam

Lebanon Evangelical School for Boys and Girls

Lebanon Evangelical School
for Boys and Girls Loueizeh - Baabda

Stage Exam 02

08DEC2023

Do NOT write in this box. Your MARK will be placed here.

Subject :	Chemistry
Class :	11SE
Teacher :	Mrs. Mirella Freige
Duration :	1 hour

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

Exercise 1: Eating Dried Fruits (15 points)

Dried fruits are either fruits which naturally contain less water, or dried fruits which are the product of the dehydration of fresh fruits. These are particularly interesting foods for a simple, practical and light diet.

Let's start with "natural" dried fruits such as hazelnuts, cashews, almonds, peanuts, pistachios… These so-called "oleaginous" fruits (from which oil can be extracted) are very caloric. They are very rich in minerals and vitamins. It should be consumed regularly but in small quantities.

They provide us with potassium, phosphorus, magnesium, calcium, iron, vitamin E, unsaturated fatty acids, omega 3... It is a great source of protein.

Dried fruits, such as apricots, dates, figs, prunes, grapes, bananas, etc., provide energy in the form of simple carbohydrates, dietary fiber, essential minerals and vitamins.

Given:1g of protein provides 17 KJ; 1g of carbohydrate provides 16 KJ and 1g of fat provides 38KJ.

Questions :

1- Referring to the text, answer the following questions:

1.1- Give the name of the transformation that gives dried fruits.

1.2- Specify why the consumption of natural dried fruits must be regular but in small quantities.

1.3- Pick out the virtues of the date.

2- "Dried fruits are a great source of essential nutrients".

Indicate the five essential nutrients .

3- Assign, each of the following carbohydrates, the corresponding class:

glucose, starch, lactose and fructose.

4- Name the chemical elements that compose carbohydrates.

5- An oligosaccharide is obtained by condensation of two monosaccharide molecules.

Recopy, then complete the following equations:

Glucose + fructose $\rightarrow$ ..... + water.

Glucose + ... $\rightarrow$ lactose + water.

6- Name the carbohydrate that is stored in green plants and the one that is stored in the human body.

7- Specify the virtues of fiber in diet.

8- Calculate, in KJ, the energy value provided by 100g of hazelnuts containing: 62g of lipids, 17g of carbohydrates and 15g of proteins.

Exercise 2: Soaps (5points)

Soap is an ancient hygiene product used for cleaning and removing dirt stains. Being the result of a hot saponification reaction between a base and fatty acids, the majority of soaps are enriched with softening agents such as the almond oil.

1- Name the chemical reaction that produces soap.
2- Draw a soap molecule and label its characteristic parts.
3- Draw and annotate micelle molecules surrounding an oil stain.
4- The presence of excess calcium ions Ca^{2+} in water reduces its quality and prevents the activity of soap. Explain.
5- Compare and contrast properties of soaps and detergents.

SE02/Chemistry/IISE

I1) 1.1. Dehydration. (3/4)

1.2. The consumption of dried fruits must be regular because they are rich in minerals and vitamins but in small quantities because they are very caloric. (1 1/2)

1.3. Dates provide energy in the form of simple carbohydrates, dietary fiber., essential minerals and vitamins. (2)

2- The five essential nutrients are:
Carbohydrates - Lipids - proteins - vitamins and minerals (1 1/4)

3- Glucose: Monosaccharide (1/4)
Fructose: Monosaccharide. (1/4)
Starch: Polysaccharide. (1/4)
Lactose: Oligosaccharide. (1/4)

4- Carbon - hydrogen and oxygen. (1 1/2)

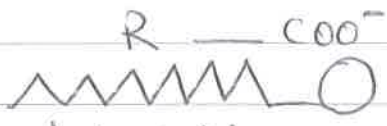
5- Glucose + Fructose ⟶ Sucrose + Water. (1/2)
Glucose + Galactose ⟶ Lactose + Water. (1/2)

6- The carbohydrate that is stored in green plants is: Starch, the one that is stored in human body is: Glycogen. (2)

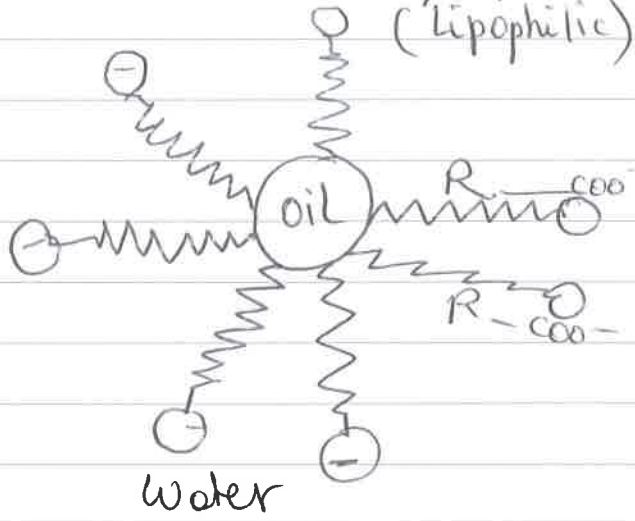
7- Fiber: . facilitates the digestion and the digestive transit. (1)
. decreases the risk of colon cancer. (1)

8- Energy value = (62g x 38) + (17g x 16) + (15g x 17)
= 2883 Kj. (2)

II_1_ Saponification (1/2)

2_ Soap 

(1)

3_ 

(1)

4_ Hard water contains high concentration of dissolved ions (Ca^{2+});
Soap precipitates in hard water, that's why the presence of Ca^{2+} in water reduces its quality and prevents the activity of soap ($1\frac{1}{2}$)

5_ * Detergents contain non-natural chemical while soaps contain natural components
* Detergents work in hard water unlike soaps. (1)