This is a Class 1 exam

Lebanon Evangelical School
for Boys and Girls
Loueizeh - Baabda

SE01 Exam

10NOV2025

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

Subject :	Chemistry	
Class :	11SE	
Teacher :	Mrs. Mirella Freige	
Duration :	1 hour	
You are to answer the questions to this exam on : Lined paper		
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 (13 points) **Weight Loss**

To function normally, the body needs a steady supply of energy. Some of this energy must come from glucose, which is needed to fuel the brain. Between meals, the breakdown of glycogen provides glucose and the breakdown of stored fat meets other energy needs. However, if energy stores are not refilled then the body weight will decrease.

If no food is eaten for more than several hours, glycogen stores can provide glucose. Since these stores are limited, so glucose is also supplied by the breakdown of small amounts of body protein to yield amino acids, which then can be used to make glucose via gluconeogenesis.... Because protein is not stored in the body, the breakdown of protein to provide energy and glucose results in the loss of functional body proteins. A loss of more than 30% of the functional body's proteins reduces the strength of the muscles required for breathing and heart function, depresses immune function and causes a general loss of organ function.

Questions:

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

   1.1. Name the carbohydrate that is needed to fuel the brain.

   1.2. Indicate the two sources of energy between meals.

   1.3. Copy and complete the following word equation:

   $$\text{Protein} \xrightarrow{\text{break down}} \ldots\ldots\ldots \xrightarrow{\text{gluconeogenesis}} \ldots\ldots$$

   1.4. Pick out the effects of the loss of the functional body's protein.

2. **2.1.** Name the chemical elements that constitute the nutrient considered as brain fuel.

   2.2. Recopy and complete the word equations for the hydrolysis reactions of sucrose and lactose:

   $$\text{Sucrose} + \text{Water} \longrightarrow \ldots\ldots + \ldots\ldots$$

   $$\text{Lactose} + \text{Water} \longrightarrow \ldots\ldots + \ldots\ldots$$

3. List the five types of nutrients needed for a balanced diet.

4. Identify the three nutritional requirements of the human body.

5. Indicate the three classes of carbohydrates, then give two examples of each class.

6. Broccoli, which is low in calories, supplies loads of nutrients and is an important source of fiber.

    6.1. Indicate the importance of fiber in the human diet.

    6.2. Does fiber have any nutritional value?

Exercise 2 (7 points) **Eating Dried Fruits**

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. They should be consumed regularly but in small quantities. They provide us with potassium, phosphorus, magnesium, calcium, iron, vitamin E, unsaturated fatty acids, omega 3... They are 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 provide us with unsaturated fatty acids, omega 3...

Distinguish between saturated fatty acids and unsaturated fatty acids.

3- Give two functions of lipids in the human body.

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

SE01/20252026/Chemistry/11SE

Exercise 1 Weight Loss (13 points)

1.1. Glucose (1/4)
1.2. Glycogen and Fats. (1/4)
1.3. Protein $\xrightarrow{\text{break down}}$ amino acids $\xrightarrow{\text{gluconeogenesis}}$ glucose. (1/2)
1.4. Reduces the strength of the muscles and depresses immune function. (1/2)
2.2.1. Carbon - Hydrogen and Oxygen. (3/4)
2.2. Sucrose + Water $\longrightarrow$ Glucose + Fructose. (1)
Lactose + Water $\longrightarrow$ Glucose + Galactose (1)

3. The 5 types of nutrients needed for a balanced diet are: Carbohydrates - Lipids - Proteins - Vitamins and Minerals. (1 1/4)

4. The three nutritional requirements are:
- Energy need covered by carbohydrates, Lipids and sometimes proteins (1 1/4)
- Growth covered by proteins. (3/4)
- Balancing and proper functioning of the human body provided by vitamins and minerals. (3/4)

5. Monosaccharides: Glucose - Fructose. (3/4)
Disaccharides: Sucrose - Maltose. (3/4)
Polysaccharides: Glycogen - Cellulose. (3/4)

6.6.1. Fiber facilitates the digestion, facilitates the digestive transit and reduces the risk of colon cancer. (1 1/2)
6.2. Since fiber isn't digested in the human body it doesn't have any nutritional value (1)

Exercise 2 Eating dried fruits (7 points)

1. 1.1. Dehydration. (1/2)

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

1.3. Dates provide energy in the form of simple carbohydrates, dietary fiber, essential minerals and vitamins. (1/2)

2- Saturated Fatty Acids: - obtained from animal sources
- Solids at room temperature
- their hydrocarbon chain contains single covalent b. only. (3/4)

. Unsaturated F.A.: - obtained from plant sources.
- Liquids at room temperature
- their hydrocarbon chain contains one or more double covalent bonds. (3/4)

3- Lipids are the main source of energy and the main components of cell membranes (2)

4- Energy value provided by 100g of hazelnuts
$= (62 \times 38) + (17 \times 16) + (15 \times 17)$
$= 2,356 + 272 + 255$
$= 2,883$ KJ. (2)