

**First Exercise (10 points)**

**Eat Dry Fruits**

Dry fruits are either fruits that contain naturally a low quantity of water or dried fruits which are the product of the dehydration of fresh fruits. They are foods particularly interesting for simple, practical and light nutrition. Starting with the natural dry fruits like nuts, cashew, almond, peanut, pistachio... These fruits called "oleaginous" (oil yielding) are so calorific (energetic). They are rich in minerals and vitamins. They should be consumed in small quantities but regularly. They supply us with potassium, phosphorous, magnesium, calcium, iron, vitamin E, unsaturated fatty acids, omega 3 ... They are a tremendous source of proteins.

The dried fruits like apricots, dates, figs, prunes, raisins, bananas....supply energy in the form of simple carbohydrates, dietary fibers, essential minerals and vitamins.

The richest in potassium and sodium are the dried apricots. Dates are recommended for its low fats content and its richness in fibers. They should be taken by women with iron deficiency...

*[www.objectifsliberte.fr/manger-des-fruits-secs.html](http://www.objectifsliberte.fr/manger-des-fruits-secs.html)*

**Given:** 1 g of carbohydrates produces 16 KJ; 1g of proteins produces 17 KJ and 1g of lipids produces 38 KJ.

**Questions:**

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

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

1.2- Specify why the consumption of naturally dry fruits should be in small quantities but regularly.

1.3- Draw out the characteristics of date.

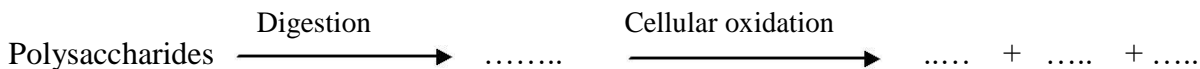
2- " Dry fruits are a important source of proteins " .

2.1- Name the monomers (units) that constitute proteins

2.2- List three important roles of proteins.

3- Assign to each carbohydrate given below, the corresponding class of carbohydrate: glucose, starch, lactose and fructose.

4- Complete the following schema of the digestion of polysaccharides:



5- Given , below, the average daily requirements of minerals for human body:

Mineral	Ca	Fe	Mg	P	K
Daily Requirement	800 mg	14 mg	375 mg	700 mg	3500 mg

Choose, among those minerals, one macro mineral and on trace mineral. Justify.

6- Calculate, in KJ, the energy value of 100 g of nuts containing: 62 g of lipids, 17 g of carbohydrates and 15 g of proteins.

7- Justify that dry fruits are rich in vitamin E (liposoluble) and very low in vitamin C (hydrosoluble).

## Second Exercise (10 points) Nutrition

To maintain good health it is necessary to change our eating habits and practices. Our average food diet generally ... consists of 50 % carbohydrates, 40 % fats and 10 % proteins (**this diet gives an energy value  $E_1$** ). We should start by modifying these percentages and consume 70 % carbohydrates, 15 % fats and 15 % proteins (**this diet gives an energy value  $E_2$** ). An easy way to reach this aim will be to:

- Increase the intake of cereals, fruits, vegetables, grains and bread.
- Eat a moderate amount of lean chicken meat (without the skin), veal, fish, egg white, milk and dairy products.
- Consume in small amounts: butter, margarine, oils, candies, sugar, chocolates, egg yolk and soda water.
- Do not forget to drink water. Your body needs is between 1.5 and 2 liters of water per day.

A health food diet must include food rich in fibers.

*<http://www.obesidad.net/english2002/start.shtml>*

### Questions

- 1- Name the five nutrients needed for the human body.
- 2- Indicate the two main functions of nutrients in the organism.
- 3- Specify the type of nutrient that can be found in fruits and vegetables.
- 4- State the two classes of lipids.
- 5- Match items of column I to their corresponding items in column II:

#### Column I

- A- Diet rich in carbohydrates
- B- Diet rich in fats
- C- Diet rich in proteins

#### Column II

- i- Normal growth
- ii- Cause obesity
- iii- Cause tooth decay

- 6- Determine the energy values  $E_1$  and  $E_2$  for 100 g of each of the above food diets.
- 7- Justify, according to the percentage of nutrients found, why the second diet (modified diet) is healthier.

**Given:** 1g of carbohydrates provides 16 kJ.  
1g of proteins provides 17 kJ.  
1g of lipids provides 38 kJ.

فرع الإقتصاد والإجتماع

**First Exercise (10 points)**  
**Eat Dry Fruits**

Part of the Q	Answer	Mark
1.1	It is the dehydration of fresh fruits.	0.5
<input type="checkbox"/>	Regularly Consumption: these fruits are very rich in minerals and vitamins. Consumption in low quantity since they are calorific.	1
1.3	Dates are recommended for its low fats content and its richness in fibers.	0.5
2.1	alpha amino acids	1
2.2	The four important roles are : - enzymatic activity - - transport role -regulatory role	1.5
3	Monosaccharides: glucose and fructose Oligosaccharides (disaccharides) : lactose Polysaccharides : starch	1
4	$\text{Polysaccharides} \xrightarrow{\text{Digestion}} \text{monosaccharides (glucose)} \xrightarrow{\text{Cellular oxidation}} \text{CO}_2 + \text{H}_2\text{O} + \text{energy}$	1
5	A macro mineral: average daily need > 100 mg ; it is calcium A trace mineral : average daily need < 20 mg ; it is iron	1
6	Energy value = (62 x 38) + (17 x 16) + (15 x 17) = 2883 KJ.	1.5
7	Dry fruits are rich in vitamin E since this vitamin is liposoluble and the % of lipids in those fruits is high. Dry fruits are low in vitamin C since those fruits are already dehydrated and the vitamin C is hydrosoluble.	1

**Second Exercise (10 points)**

<b>Part of the Q</b>	<b>Answer</b>	<b>Mark</b>
<b>1</b>	The five nutrients are: carbohydrates, proteins, lipids, vitamins and minerals.	<b>2.5</b>
<b>2</b>	The two main functions of the nutrients are: <ul style="list-style-type: none"> <li>- For growth and maintenance.</li> <li>- Suppliers of energy.</li> </ul>	<b>1</b>
<b>3</b>	Fruits and vegetables are a main source of Vitamins	<b>0.5</b>
<b>4</b>	Simple lipids and complex lipids	<b>1</b>
<b>5</b>	A – iii, B – ii and C – i.	<b>1.5</b>
<b>6</b>	Energy value = $E_{\text{carbohydrates}} + E_{\text{lipids}} + E_{\text{proteins}}$ . $E_1 = 50 \times 16 + 40 \times 38 + 10 \times 17 = 2490 \text{ kJ}$ $E_2 = 70 \times 16 + 15 \times 38 + 15 \times 17 = 1945 \text{ kJ}$ .	<b>3</b>
<b>7</b>	the second diet is healthier since it has a lower percentage of fats that causes cardiovascular diseases and a higher percentage of proteins are which responsible for growth and maintenance. Also the second diet has a higher percentage of carbohydrates mainly fibers that helps the stomach during digestion.	<b>1.5</b>