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SUBJECT: **Home Economics & Human Ecology**  
DATE: 2<sup>nd</sup> September 2022  
TIME: 9:00 a.m. to 12:05 p.m.

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**SECTION A**

**Answer ALL questions.**

1. Define food spoilage and distinguish between microbial and chemical food spoilage. Identify **FOUR** factors that increase the chance of food spoilage. (3, 2)
2. Outline the role of vitamin supplements and suggest **TWO** points to keep in mind to ensure the safe intake of these supplements. (1, 1)
3. Vitamin C and B1 can easily be lost during cooking. Give the scientific name of Vitamin C and B1. Suggest **TWO** ways how to ensure the maximum retention if these vitamins during cooking. Outline **ONE** effect of low intake of Vitamin C on one's health. (1, 2, 1)
4. Give **THREE** reasons why people should **not** skip breakfast. (3)
5. Justify the importance of iron in the human body and describe what happens to the body if lack of iron is consumed over a prolonged period. Suggest **TWO** foods which are considered as an abundant source of iron. (1, 1, 1)
6. Define vegan diet and suggest **FOUR** vegan snacks which can be prepared by a post-secondary student to consume in between lectures. (1, 2)
7. The Healthy Plate is a simple and practical aid for healthy nutrition. State the daily number of servings the Healthy Plate suggests for the following food groups:
  - i. cereals;
  - ii. vegetables;
  - iii. fruit;
  - iv. dairy products. (2)
8. One of the Maltese dietary guidelines encourages individuals to prepare homemade foods using healthy methods of cooking, such as steaming, baking or grilling. Outline **SIX** benefits of implementing this dietary guideline in one's lifestyle. (3)
9. Describe the condition of osteoporosis. State **TWO** dietary and **TWO** non-dietary behaviours that can contribute to the development of such condition. (2, 1, 1)
10. Define and briefly explain the purpose of engineered landfills. State **TWO** ways in which engineered landfills have helped to improve the health of the Maltese nation. (1, 1, 2)

***Please turn the page.***

11. Define the term Genetically Modified Organisms (GMOs). List **FOUR** food items/ingredients that can be genetically modified and identify **ONE** negative impact GMO food production can have on **each** of the following:
- the natural environment;
  - the human health. (1, 2, 2)
12. Food waste remains a problem in Europe and around the world. Discuss why food waste is a global concern. (2)

**(Total: 40 marks)**

## **SECTION B**

**Answer ANY THREE questions.**

1. Wise budgeting and good management of one's money may help in achieving financial prosperity.
- Define gross income, disposable income and non-wage income. (3)
  - There are various reasons why individuals may end up running into *debt* or *living on credit*.
    - Define the italicised terms and suggest **TWO** groups of people who are most likely to live on credit. (2, 1)
    - Illustrate why **each** group mentioned in part (i) may be living on credit. (1, 1)
    - Outline **THREE** reasons why young adults may run into debt. (3)
  - An adult male lost his job after moving into a new house with his wife. They need some help in working out a monthly budget.
    - Define the term budget and outline **FOUR** justifications to budgeting money. (1, 2)
    - Outline **FOUR** strategies that would help this couple have enough money to pay the monthly instalment of their home loan. (2)
    - Planning for retirement is one of the most important financial decisions which one needs to undertake. Outline **THREE** benefits of investing in a private pension scheme and describe this type of investment. (3, 1)

**(Total: 20 marks)**

2. Early childhood development provides the building blocks of a healthy, successful future generation consisting of strong communities and responsible citizens.  
(<https://developingchild.harvard.edu/guide/what-is-early-childhood-development-a-guide-to-the-science/>)
- Childhood development involves physical, social, emotional, and intellectual stages.
    - Describe the key stages of development in a child between 0 – 4 years. (4)
    - For **each** stage of development, highlight **ONE** basic need and give **ONE** example. (2, 2)
  - An elderly couple are going to babysit their three-year old grandson, while his parents are at work. They are both aware that play is essential in preschool children as it promotes a healthy development.
    - For **each** type of development mentioned in part (a), identify **TWO** activities that can be organised for a three-year-old child, justifying how each activity would contribute to the child's well-being. (2, 2, 2, 2)

- ii. Compare the difference between fine and gross motor skills. Give **TWO** examples of **each** type of motor skill. (2, 2)

**(Total: 20 marks)**

3. The ratio between animal and plant protein in the Western diet is causing serious threats to both public health and the environment. Healthy, pro-environmental protein consumption requires a transition to a diet with more plant protein and considerably less animal protein.

(de Boer & Aiking, 2018)

- a) Explain the term Essential Amino Acids. Name **THREE** essential amino acids for adults and **ONE** essential amino acid required by children. (1, 1.5, 0.5)
- b) List the **FOUR** chemical elements that make up all amino acids and list the **TWO** other chemical elements that are found in some amino acids. (2, 1)
- c) Other than a source of energy, outline **TWO** functions of protein in the diet and state how many kilocalories are there in one gram of protein. (2, 1)
- d) Name **TWO** types of protein found in the human body and state where these proteins are found in the body. (1, 1)
- e) Explain the difference between high-biological value and low-biological value protein foods. Name **THREE** food sources for **each**. (1, 1.5, 1.5)
- f) Explain how complementary protein foods function and suggest a healthy snack which you can prepare for your friends to show your understanding of protein complementation. (2, 1)
- g) Briefly explain why plant food sources of protein have less environmental impact and are considered more sustainable than animal food sources of protein. (2)

**(Total: 20 marks)**

4. By 2045, 45.2% of Maltese adults are forecast to suffer diabetes, according to a recent research published by the International Diabetes Federation (2018).

- a) Explain, in detail, the difference between insulin-dependent diabetes and non-insulin dependent diabetes. For **each** type of diabetes mentioned, state **ONE** population group that are typically affected by that disease. (2, 1)
- b) Explain why diabetic individuals are advised to consume low glycaemic index carbohydrate foods. (2)
- c) List **FOUR** common symptoms that a diabetic person may experience before diagnosis. (2)
- d) Identify **TWO** health complications that can result if diabetes is **not** treated or managed well. (2)
- e) A pastry chef has recently been diagnosed with non-insulin dependent diabetes. Outline **THREE** dietary and **THREE** non-dietary measures that she should follow to keep her condition under control. (1.5, 1.5)

***Please turn the page.***

- f) The pastry chef has become very conscious of her condition and wants to modify some of her sweet recipes to help other diabetic individuals control their health condition better. Help the pastry chef by suggesting **FIVE** modifications she can make to the following apple pie recipe. Give **ONE** reason for **each** modification mentioned. (5)

<b>Apple Pie Recipe</b>	
<i>Ingredients for pastry</i>	300g plain flour
	150g butter
	vanilla
	pinch of baking powder
	100g sugar
	1 egg
	1tsp. salt
	4-5 tbsp. water, if needed
<i>Ingredients for filling</i>	6 peeled apples
	1 ½ tsp. cinnamon
	8 tbsp. unsalted butter
	200g granulated sugar
	1 tsp. lemon juice
	80g raisins
	80g nuts

- g) Name **TWO** healthy traditional Maltese sweets that can be prepared by the chef. (1)
- h) Briefly discuss the value of Maltese Traditional dishes in promoting the Maltese identity. (2)

**(Total: 20 marks)**