

**MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD**  
**UNIVERSITY OF MALTA, MSIDA**  
**MATRICULATION EXAMINATION**  
**ADVANCED LEVEL**  
**MAY 2017**

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<b>SUBJECT:</b>	HOME ECONOMICS AND HUMAN ECOLOGY
<b>PAPER NUMBER:</b>	I
<b>DATE:</b>	27 <sup>th</sup> April 2017
<b>TIME:</b>	4.00 p.m. to 7.05 p.m.

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**Answer any FIVE questions (20 marks each)**

**Question 1**

A family with two teenagers, who are into competitive sports and consume large amounts of protein foods mainly meat, would like to buy a table-top electric grill.

- a. List **FOUR** advantages of owning a table-top electric grill. (2)
- b. Outline **SIX** factors to be considered when buying this type of small appliance. (3)
- c. Describe **THREE** different sources of e-information the family can consult to make an informed choice when buying this table-top electric grill. (3)
- d. Explain in detail, the method of cooking that can be carried out using this appliance. Outline considerations to be kept in mind when buying, preparing and cooking meat and vegetables for this method of cooking. (2, 2, 2, 2)
- e. After making an informed decision, the family purchases an electric grill. A few weeks later the grill develops a fault. Explain the methods of redress the family can take to solve this problem. (4)

**(Total: 20 marks)**

## Question 2

In 2010, Malta set a target to reduce the number of people *at-risk-of poverty* or *social exclusion* to 6,560. A number of measures have been taken by the government and organisations to reach this target.

- a. Briefly explain the italicised phrases and give **TWO** examples. (2, 2)
  - b. Identify **FOUR** groups of people who may be more at risk-of-poverty and social exclusion. (2)
  - c. Mention **TWO** effects of poverty on family dynamics. (1)
  - d. Name **TWO** local organisations that help families or individuals who are considered to be at risk-of-poverty. Describe **TWO** initiatives they carry out in this regard. (1, 2)
  - e. The document ‘A Minimum Essential Budget for a Decent Living – 2016’ (Piscopo, McKay and Bonello, 2016) sought to establish the minimum budget required for low income families to be able to achieve an acceptable and decent standard of living.
    - i. Explain what is meant by decent standard of living. (3)
    - ii. Mention **FOUR** measures that a family who is at risk-of-poverty can take to improve its financial situation. (4)
    - iii. Suggest **THREE** low-cost or free leisure activities that a family on a low income could engage in to prevent social exclusion. (3)
- (Total: 20 marks)**

## Question 3

A very eco-conscious couple have recently purchased an apartment in shell form and are planning to finish it in an eco-friendly way.

- a. Define the term ‘shell form’ and explain how this differs from an apartment on plan. (2)
  - b. Outline **TWO** measures the couple can take to conserve energy in each of the following:
    - i. in the structure of the building; (2)
    - ii. when choosing their home appliances; (2)
    - iii. when furnishing their home. (2)
  - c. The local government is giving grants to household units when installing *photovoltaic panels* and *solar water heaters*.
    - i. Describe briefly how these **TWO** italicised eco-friendly systems work. (2)
    - ii. List **TWO** advantages and **TWO** disadvantages for each eco-friendly system. (4, 4)
  - d. If the couple does not have legal access to the roof area and is unable to install the two eco-systems outlined in part (c), explain how the couple can still take advantage of this national initiative and benefit from the government grants offered. (2)
- (Total: 20 marks)**

<b>Question 4</b>
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In recent years, the care for elderly in the community has been given importance by the Maltese authorities by providing a range of new services and opportunities for the benefit of both the elderly and their families.

- a. Discuss **TWO** implications of having an increase in state and private homes for the elderly for each of the following:
  - i. the state; (2)
  - ii. the elderly persons. (2)
  
- b. Identify **FOUR** different needs that an elderly person would have once s/he moves into a care home for the elderly. (2)
  
- c. Recently, the state authorities have increased the social assistance given to carers who stay at home to take care of an elderly family member who is unable to take care of him/herself. Discuss **ONE** advantages and **ONE** disadvantage of this social security benefit for each of the following:
  - i. the elderly person; (2)
  - ii. the carer; (2)
  - iii. the state. (2)
  
- d. Name and outline **TWO** other services provided either by the Government or NGOs which help to alleviate the challenging financial situation of a chronically ill elderly person and his family. (4)
  
- e. A 45-year-old single woman who has always lived with her parents in their rented apartment, had to stop working to take care of her 75-year-old widowed mother who suffers from dementia. Although the daughter receives financial aid from the government in the form of the social assistance for carers, she is finding it difficult to pay the rent due to the additional expenses needed to manage her mother's dementia.
  - i. Name **ONE** type of assistance to help this woman find alternative housing options from the state. Explain the aims of this assistance. (1, 2)
  - ii. Identify **TWO** other life circumstances that a family could be going through to make a person eligible to apply for this type of assistance mentioned in part (a) above. (1)

**(Total: 20 marks)**

*Questions continue on next page.*

### Question 5

When a person owns a house and spends large sums of money to make it comfortable for his/her family, the least thing s/he would wish is to have burglars breaking into the house.

- a. Outline **FOUR** possible reasons why a house may become a target for burglars. (4)
- b. Describe **TWO** different security measures that could be adopted or installed to ensure safety against intruders in each of the following dwellings:
  - i. a terraced house with a front garden; (2)
  - ii. a first floor apartment. (2)
- c. Apart from having intruders breaking into the house, mention **TWO** other forms of damage that could occur to a house that may compromise its safety. (1)
- d. Choose **ONE** of the suggested forms of damage mentioned in part (c) and state what precautions could be taken to prevent it or minimise the damage as much as possible. (2)
- e. Modern technology has made it possible to use smart phones to monitor homes. Describe briefly how this technology works and discuss **THREE** implications of installing such a system. (2, 3)
- f. A Gozitan family owns a penthouse in Malta. They only use it for one-off occasions and want to insure this penthouse together with its belongings.
  - i. Name and briefly describe **ONE** suitable type of home insurance suitable for this family. (2)
  - ii. Discuss **ONE** advantage and **ONE** disadvantage of this type of insurance policy which the Gozitan family would need to consider in order to make an informed choice. (2)

**(Total: 20 marks)**

### Question 6

Air pollution is a major global concern. A total of 194 countries have signed the Paris Agreement (2016) treaty to reduce the emissions of greenhouse gases. One measure adopted by foreign countries to implement such a goal is the banning of vehicles due to smog.

- a. Explain the greenhouse effect and how this affects the natural environment. (1, 1)
- b. List **FOUR** chemicals that cause air pollution, outlining their sources and the impact of such chemicals on human health. (2, 4, 4)
- c. The farming industry is a contributor to air pollution. Outline **TWO** initiatives taken by local farmers and agricultural authorities to reduce the negative impact this important industry has on the environment and the general health status of the Maltese population. (2)
- d. Describe **SIX** measures a family with young children can take to reduce air pollution in Malta when shopping for food. (6)

**(Total: 20 marks)**

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Answer any **FIVE** questions (20 marks each)

<b>Question 1</b>
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A young lady confirmed with her doctor that she is pregnant and is in her sixth week of gestation. Her doctor recommended folic acid and iron supplements.

- Explain the need for an adequate intake of folic acid and iron in a pregnant woman's diet. (2, 2)
- Describe **SIX** changes in the nutritional needs of a pregnant woman and outline the reasons for each need. (6)
- Some foods should be avoided during pregnancy. List **FOUR** of these foods and outline the underlying scientific reason for their avoidance. (4)
- The baby's birth leads to the mother's natural production of colostrum, which after two days is replaced by breast milk.
  - Explain **TWO** benefits of colostrum to the new born baby. (2)
  - Outline **TWO** nutritional advantages of breast milk over baby formula milk. (2)
- Describe how the nutritional needs of a lactating mother differ from those of a pregnant woman, including foods that need to be avoided. (2)

(Total: 20 marks)

<b>Question 2</b>
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The prevalence of food intolerances, food allergies and coeliac disease is on the increase.

- Define food intolerances and food allergies, outlining the difference between them. (1, 1, 1)
- Identify **FOUR** factors that may be contributing to the increase in prevalence of these **TWO** food conditions. (2)
- Coeliac disease and lactose intolerance are two commonly diagnosed food problems. For each problem, outline:
  - the cause of such condition; (2)
  - FOUR** foods that need to be avoided; (4)
  - TWO** symptoms of the condition. (2)
- Briefly explain **FOUR** ways how food producers are reacting to the needs of consumers suffering from these conditions. (4)
- People with coeliac disease are at risk of developing osteoporosis. Explain **THREE** dietary and **THREE** non-dietary measures that can be taken to lessen this risk. (3)

(Total: 20 marks)

<b>Question 3</b>
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Yoghurt and ricotta are very versatile foods. They can both be consumed on their own or mixed with other ingredients to make delicious dishes.

- a. Give the nutritional value of yoghurt and ricotta. (2, 2)
- b. Outline briefly the production of these two dairy products. (3, 3)
- c. Local retail outlets offer consumers both locally produced and imported ricotta and yoghurt. Outline **THREE** advantages of buying locally produced versions. (3)
- d. Explain the following statements, underlying the scientific principles involved.
  - i. Yoghurt is a high probiotic food with health benefits. (1)
  - ii. Lemon juice can be used to make ricotta. (1)
  - iii. Ricotta is a cheese by-product in many countries but not in Malta. (1)
  - iv. Yoghurt should be refrigerated at a temperature of 2°C to 4.4°C. (1)
- e. Describe **THREE** ways how to include ricotta and yoghurt in sweet and savoury dishes specifically prepared for children who dislike these two foods. (3)

**(Total: 20 marks)**

<b>Question 4</b>
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Micronutrients are essential for human health. Whilst minerals are rather stable, vitamins are easily lost and destroyed when cooking and preparing food.

- a. Explain how micronutrients differ from macronutrients. (1)
- b. Identify **THREE** differences between water-soluble vitamins and fat-soluble vitamins. (3)
- c. Identify the vitamins that are classified as fat-soluble and for each outline:
  - i. its chemical name; (2)
  - ii. its function in the human body; (4)
  - iii. **TWO** food sources suitable for a vegan. (4)
- d. Water-soluble vitamins are very unstable. Explain how one can ensure maximum retention of these vitamins when buying and storing; preparing and cooking; and finally serving foods rich in these vitamins. (2, 2, 2)

**(Total: 20 marks)**

<b>Question 5</b>
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Carbohydrate-rich foods form a substantial part of many people's diets. However, the healthiest types of carbohydrate-rich foods are not very popular among some consumers. Carbohydrates can be classified as different types of saccharides.

- a. Explain how disaccharides are formed and illustrate your explanation by describing **THREE** specific examples. (1, 3)
- b. Non-Starch Polysaccharides (NSP) are another type of carbohydrate, together with sugars and starch. Explain **ONE** way how NSP are similar to starch and **ONE** way how they differ from both starch and sugars in their function and structure. (2)
- c. NSP can be found in a soluble and an insoluble form in food. Distinguish between the **TWO** forms of NSP and state **ONE** function of each form in our body. (2, 2)
- d. Describe in detail, the digestion and absorption of carbohydrates present in a wholewheat wrap with vegetables. (6)
- e. Suggest **FOUR** innovative ways how cereal plant foods, other than wheat, can be used to create healthy carbohydrate-rich dishes, which can be consumed as snacks or main courses instead of the usual bread, rice or pasta. (4)

**(Total: 20 marks)**

<b>Question 6</b>
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Traditional Maltese cuisine often involves the simmering of foods for long hours over a low flame. This slow method of cooking has seen a revival in our hectic lives, with the increased use of the electric slow cooker.

- a. Briefly explain how a slow cooker works. (2)
- b. Outline the scientific principles of cooking tough cuts of meat using the slow and moist cooking method provided by a slow cooker. (3)
- c. Certain enzymes, ingredients and procedures used during food preparation can improve tough cuts of meat when it is cooked.
  - i. Name **TWO** enzymes that are obtained directly from their fruit sources and describe their effect on the structure of the meat. (3)
  - ii. Outline briefly **TWO** procedures and name **TWO** ingredients which can improve the quality of tough cuts of meat. (2)
- d. Identify **FOUR** features that one should look for when buying a slow cooker. (4)
- e. List **THREE** advantages and **THREE** disadvantages of this labour saving device. (3, 3)

**(Total: 20 marks)**