

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD

UNIVERSITY OF MALTA, MSIDA

MATRICULATION EXAMINATION  
ADVANCED LEVEL  
SEPTEMBER 2016

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<b>SUBJECT:</b>	HOME ECONOMICS AND HUMAN ECOLOGY
<b>PAPER NUMBER:</b>	I
<b>DATE:</b>	2 <sup>nd</sup> September 2016
<b>TIME:</b>	9.00 a.m. to 12.05 p.m.

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**ANSWER ANY FIVE QUESTIONS (20 marks each)**

**Question 1**

Two topics that are widely discussed worldwide are sustainability and the conservation of natural resources and energy.

- i) Define *sustainability* and support your definition with **TWO** examples. (1, 2 marks)
- ii) Highlight **THREE** practices within a household that contribute towards the sustainability of the local and global environment. Give **ONE** reason for **EACH** practice. (3, 3 marks)
- iii) Explain the term *sustainable homes* and describe **THREE** features of such homes. (1, 3 marks)
- iv) Farming practices should be aimed at the conservation of natural resources. Highlight **TWO** benefits of such conservation and illustrate **TWO** ways how farmers can be sustainable when carrying out farming practices. (2, 2 marks)
- v) Some experts are concerned with the practice of recycling. Highlight the difference between *reuse* and *recycle*. Explain **TWO** problems attributed to recycling. Suggest **ONE** other form of recycling to alleviate the problems you mentioned. (1, 1, 1 mark)

<b>Question 2</b>
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Air pollution (both indoor and outdoor) can have a negative impact on humans. National initiatives are being taken to improve air quality in Malta.

- i) Outline **SIX** air pollutants that can occur indoor and outdoor. Give **TWO** practical examples of how these pollutants are produced. (3, 3 marks)
- ii) Describe how the air pollutants mentioned above can impact human health. (6 marks)
- iii) Suggest **FIVE** ways how a family can reduce indoor air pollution and accompany **EACH** suggestion with an environmentally-friendly alternative. (5 marks)
- iv) Highlight **THREE** national initiatives that were taken to improve outdoor air quality, outlining the benefits of such initiatives other than improving the population's health status. (3 marks)

<b>Question 3</b>
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Over these past years, prospective parents have been urged to follow various courses on parental preparation for the arrival of a new-born, and in parental skills throughout childhood.

- i) For **EACH** of the following, outline **TWO** reasons why parents ought to follow parental courses:
  - a) before the birth of a child;
  - b) when the young child is in the last years of primary schooling. (1, 1 mark)
- ii) Babies develop in infants, toddlers and school children at a fast rate. List and describe the key developmental stages in a child between 0 – 4 years. For **EACH** stage of development, highlight **TWO** basic needs and give **TWO** examples. (2, 2, 2, 4 marks)
- iii) Identify the main types of motor development and explain, giving **ONE** reason, how play helps with the different types of motor development in a child. Give **TWO** examples of activities or play that develop **EACH** type of motor development. (1, 1, 2 marks)
- iv) Highlight **ONE** way how play helps in **TWO** other areas of development, providing **TWO** examples of **EACH**. (2, 2 marks)

<b>Question 4</b>
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A European Health report published in 2015 revealed that Maltese adults consume approximately 7 litres of alcohol per year.

- i) Define *alcohol*, giving **TWO** examples and outline its calorific content. (1, 1, 1 mark)
- ii) Outline **FOUR** negative impacts of abuse of alcohol on **EACH** of the following:  
 a) human health;  
 b) the society. (4, 4 marks)
- iii) Explain **EACH** of the following statements.  
 a) Binge drinking can be more harmful than regular alcohol consumption;  
 b) Alcohol drinking during pregnancy will affect the unborn child;  
 c) Drinking and Driving can kill;  
 d) Over the limit, under arrest;  
 e) The process of making non-alcohol beers. (5 marks)
- iv) Describe **TWO** local government initiatives that discourage alcohol abuse and **TWO** non-governmental entities that work in the field of sensible alcohol consumption. (2, 2 marks)

<b>Question 5</b>
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After reviewing some prospective property, a couple decided to sign a *promise of sale* to buy a maisonette.

- i) Define the term *promise of sale* and outline **TWO** of its main functions. (1, 1 mark)
- ii) Outline the basic steps in the legal and formal process this couple should go through when buying the maisonette. (6 marks)
- iii) List and describe the costs involved when buying a house. (3 marks)
- iv) Following an inspection conducted by an architect, the maisonette was found to have a fairly high level of humidity. This, together with lack of ventilation may be harmful to human health as well as to the house structure and its contents.  
 a) Define the terms *high humidity* and *lack of ventilation* and identify **TWO** indicators for **EACH** of these conditions in an accommodation. (1, 2 marks)  
 b) Outline **THREE** negative impacts caused by **EACH** of these undesirable housing conditions on:  
 1) human health;  
 2) the home structure and its contents. (3 marks)  
 c) When planning, constructing and furnishing a home, measures can be taken to lessen the humidity level and ensure adequate ventilation. List **TWO** strategies that can be implemented in **EACH** of the above-mentioned phases. (1, 1, 1 mark)

**Question 6**

For most people living on credit has become a way of life.

- i) Explain *living on credit* and suggest **TWO** groups of people who are most likely to adopt this way of living. (1, 1 mark)
- ii) State the reason why **EACH** group mentioned in (i) are living on credit. (1, 1 mark)
- iii) List and describe **TWO** main sources of financial advice that one may wish to seek when considering obtaining a credit. (1, 2 marks)
- iv) Borrowing money is also quite common. Describe the use of the following credit systems and list **TWO** features for **EACH**:
  - a. Overdrafts;
  - b. Personal loans. (2, 4 marks)
- v) Outline **THREE** reasons why young adults may run in debt. (3 marks)
- vi) Explain the importance of budgeting for the following groups of people:
  - a. A single mother with a young child;
  - b. An adult who will retire within 3 years;
  - c. A 16-year-old teenager who just started post-secondary school;
  - d. A couple with three children aged 10, 12 and 14 years. (4 marks)

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<b>SUBJECT:</b>	HOME ECONOMICS AND HUMAN ECOLOGY
<b>PAPER NUMBER:</b>	II
<b>DATE:</b>	3 <sup>rd</sup> September 2016
<b>TIME:</b>	9.00 a.m. to 12.05 p.m.

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**ANSWER ANY FIVE QUESTIONS (20 marks each)**

**Question 1**

Minerals are micronutrients essential to the human body.

- i) Explain the term *micronutrients* and the digestion and absorption of micronutrients in the human body. (1, 1 marks)
- ii) Calcium, potassium, sodium and magnesium are considered as macro minerals. For **EACH** of these nutrients:
  - a) explain its role in the body;
  - b) outline deficiency and excess of these minerals;
  - c) list **TWO** food sources. (4, 4, 4 marks)
- iii) Some minerals are known as *trace elements*. Explain the italicised term and give **FOUR** examples of these minerals. (1, 2 marks)
- iv) Give the scientific principles underlying **THREE** of the following statements:
  - a) The complementary intake of specific vitamins helps the absorption and role of minerals in the body.
  - b) Excess fluoride intake can result in mottled teeth.
  - c) Zinc and Vitamin C supplements can prevent common colds.
  - d) Selenium is an antioxidant. (3 marks)

<b>Question 2</b>
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An elderly woman was diagnosed with *diverticulosis* in addition to her diabetic condition.

- i) Define and give the aetiology of diabetes. (1, 2 marks)
- ii) List and explain the types of diabetes that may exist in this elderly woman. (1 mark)
- iii) List the main nutrients needed by this elderly woman, highlighting the function for **EACH**. (6 marks)
- iv) Define diverticulosis and explain with the aid of diagrams how diverticulosis results. (1, 2, 2 marks)
- v) Suggest **ONE** main meal suitable for this elderly woman, underlying the method of cooking and the scientific principles involved, as well as **FOUR** main nutrients present in the meal. (1, 2, 2 marks)

<b>Question 3</b>
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Being a Mediterranean country, Malta is abundant in various fruits which can be very beneficial to health.

- i) Outline the benefits of fruits to the human body. (4 marks)
- ii) Describe how different fruits can be used and prepared in different meals of the day, not only as a main dessert ingredient. (2 marks)
- iii) Prickly pears have been identified as a good source of antioxidants and have cholesterol-lowering capabilities.
  - a) Explain the term *antioxidants* and their benefit to human health. (1, 1 mark)
  - b) In summer prickly pears are plentiful in Malta. Outline **FOUR** ways how this fruit can be prepared for consumption and preservation. (2 marks)
- iv) Figs have a very short season. However, they can be successfully preserved for future use. Outline **TWO** preservation methods suitable for this fruit, highlighting a detailed account of the process involved for each preservation method. (4, 4 marks)
- v) Explain the scientific principles underlying the following statements.
  - a) Banana is an energy boost food;
  - b) Fresh pineapple will not allow jelly to set;
  - c) Lemon and orange juice helps sliced apples from turning brown;
  - d) Apple is often prepared in pork dishes to help digestion. (2 marks)

<b>Question 4</b>
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Most people tend to consume a higher quantity of food which is rich in fat. However the lack of its consumption may also result in complications.

- i) Outline **FOUR** functions of lipids in the body. (2 marks)
- ii) Give the chemical elements of fatty acids and draw the physical structure of a saturated and a polyunsaturated fatty acid. Outline the main chemical and physical structural differences between these two types of fatty acids. (1, 2, 2, 2 marks)
- iii) Explain the importance of omega fatty acids and give **FOUR** food sources. (1, 2 marks)
- iv) Describe in detail the physical and chemical processes involved in the digestion of lipids. (6 marks)
- v) Outline **FOUR** health implications which could develop when consuming an excess amount of lipids on a regular basis. (2 marks)

<b>Question 5</b>
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As diet has always played a vital role in supporting health, updated national dietary guidelines are issued periodically to help fulfil this role.

- i) Justify the above statement. Define and give the function of *national dietary guidelines*. Explain the difference between *Food Guides* and *Dietary Guidelines*. (1, 1, 1, 1 mark)
- ii) Outline the recommended energy intake from the following nutrients:
  - a) carbohydrates;
  - b) sugars;
  - c) fats;
  - d) saturated fats;
  - e) dietary fibre;
  - f) proteins. (3 marks)
- iii) Food is classified according to its energy value. Explain this statement giving a specific example of food for **EACH** type mentioned. (1, 1, 1 mark)
- iv) Individuals need to make sure that they follow a healthy lifestyle. Explain and justify the following basic steps to maintain a healthy diet:
  - a) Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.
  - b) Eat bread, grains, pasta, rice or potatoes several times per day.
  - c) Control fat intake and replace most saturated fats with unsaturated vegetable oils or soft margarines.
  - d) Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.
  - e) If alcohol is consumed, limit intake to no more than 2 drinks (each containing 10g of alcohol) per day. (10 marks)

**Question 6**

Coronary heart disease is said to be a silent killer of which people with high blood cholesterol are at a greater risk.

- i) Define and explain the role of the **TWO** main types of *cholesterol* in the body. Give **FOUR** food sources of EACH of these types of cholesterol. (2, 2 marks)
- ii) Give the recommended daily intake of cholesterol and the amount of cholesterol produced by the body. Outline **TWO** positive functions of cholesterol in the body, and explain **TWO** negative implications that a daily high intake of cholesterol can lead to. (1, 2, 2 marks)
- iii) Explain how coronary heart disease develops. (3 marks)
- iv) Omega-3 and Omega-6 fatty acids can be beneficial to heart health.
  - a) Explain the difference between Omega-3 and Omega-6. Illustrate your explanation using simple diagrams. (2, 2 marks)
  - b) Outline **FOUR** benefits of consuming these omega fatty acids. Identify **TWO** food sources for **EACH** of the fatty acids. (2, 2 marks)