



**Home Economics  
Leaving Certificate  
Higher Level**

**Past Exam Questions on  
Food Science and Nutrition**

**Q1 Section A 2013**

1. Complete the table below in relation to the biological functions of protein. (6)

Type	Function
Structural proteins	
Physiologically active proteins	
Nutrient proteins	

**Q2 Section A 2013**

2. In relation to lipids, explain each of the following terms: (6)

*Oxidative rancidity* \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Hydrolytic rancidity* \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Q5 Section A 2013**

5. Differentiate between the following dairy spreads and give one example of each. (6)

*Low-fat spreads* \_\_\_\_\_

\_\_\_\_\_

*Example* \_\_\_\_\_

*Functional dairy spreads* \_\_\_\_\_

\_\_\_\_\_

*Example* \_\_\_\_\_

## Q1 Section A 2013

1. Irish healthy eating guidelines encourage people to eat a variety of foods based on the *Food Pyramid*. Findings are presented below on the percentage of respondents consuming the recommended number of daily servings from each shelf of the *Food Pyramid* (1998 and 2007).

(SLAN 2007: *Survey of Lifestyle, Attitudes and Nutrition in Ireland. Dietary Habits of the Irish Population, Department of Health and Children*)

	1998 %	2007 %
Cereals, breads and potatoes (6+ daily servings)	40	26
Fruit and vegetables (4+ daily servings)	56	65
Milk, cheese and yoghurt products (3 daily servings)	22	20
Meat, fish, poultry and alternatives (2 daily servings)	36	39
Top shelf: foods high in fats, sugar or salt (less than 3 daily servings)	14	14

- (a) In relation to the information provided in the chart, comment **and** elaborate on the percentage of respondents consuming the recommended number of daily servings from each shelf of the *Food Pyramid*. (24)
- (b) Identify **and** give an account of the main factors that are contributing to the prevalence of obesity in Ireland. (16)
- (c) Outline the significance of fatty acids in the diet. (8)
- (d) Describe the structure of **each** of the following:  
• cis fatty acids  
• trans fatty acids  
• omega 3 fatty acids. (12)
- (e) Discuss how food labelling assists consumers in making informed food choices. (20)

**Q1 Section A 2012**

1. Give one main function of sodium in the diet. (6)

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List two good dietary sources of sodium.

- (i) \_\_\_\_\_ (ii) \_\_\_\_\_

**Q2 Section A 2012**

2. Explain each of the following terms. (6)

- (i) *Low-density lipoproteins (LDL)* \_\_\_\_\_

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- (ii) *High-density lipoproteins (HDL)* \_\_\_\_\_

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## Q1 Section B 2012

1. 'Food-based dietary guidelines' is the complete scientific term for a set of healthy eating messages provided for a population, in terms of how much and which types of foods to eat for good health.

(Food Safety Authority of Ireland, FSAI)

New recommendations for food-based guidelines for healthy eating in Ireland were devised by the FSAI. An extract relating to the recommended servings per day for two food groups (bread/cereals and fruit & vegetables) is presented in the table below.

Age		5-13 years		14-18 years		19-50 years		51+ years	
Gender		Male	Female	Male	Female	Male	Female	Male	Female
Bread, Cereals etc. Servings	Moderately active	3-5	3-4	5-7	4	5-7	4-5	4-5	3-4
	Sedentary	3-5	3-4	4-5	3	4-6	3-4	4	3
Fruit & Vegetables Servings		5	5	5-6	5	5-7	5-6	5	5

- (a) In relation to the two food groups referred to in the table, comment and suggest reasons for the variations in the recommendations made. (24)
- (b) Give an account of carbohydrates and refer to:
- the chemical structure of a monosaccharide
  - the formation of disaccharides
  - the hydrolysis of sugar to include inversion. (24)
- (c) Discuss the importance of balancing energy intake and energy output. (12)
- (d) Identify and discuss contemporary trends in food shopping practices. (20)

## Q1 Section A 2011

1. Complete the following table in relation to carbohydrates. (6)

Classification	Example	Food Source
Monosaccharides		
Disaccharides		
Polysaccharides		

**Q2 Section A 2011**

2. List three properties of Vitamin A (Retinol). (6)

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_

**Q4 Section A 2011**

4. Name the main type of protein found in each of the foods listed below. (6)

Food	Type of Protein
Fish	
Eggs	
Wheat	

**Q5 Section A 2011**

5. In relation to freezing vegetables, explain how loss of vitamin B<sub>1</sub> and vitamin C may occur. (6)

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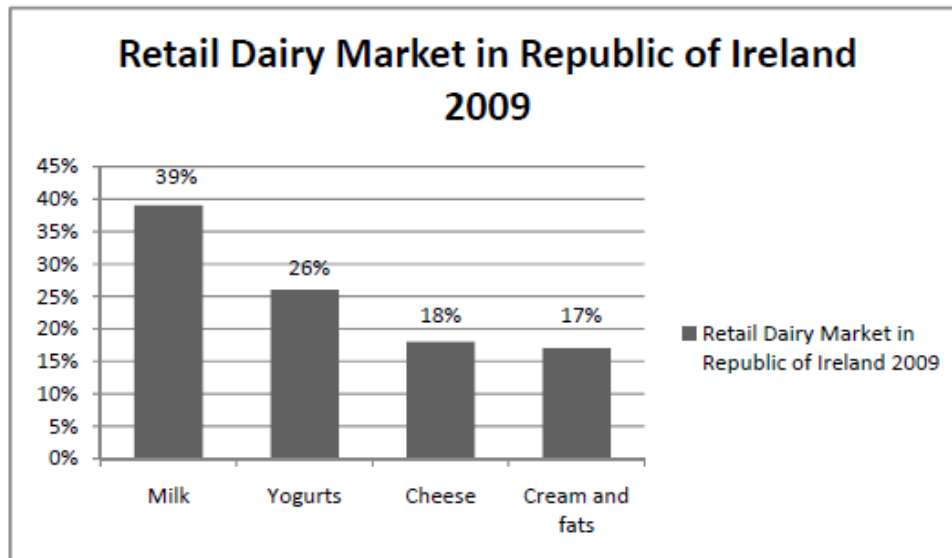
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## Q1 Section B 2011

1. The National Dairy Council (NDC) plays a vital role in driving a sustainable dairy industry in Ireland and in educating consumers on the role of dairy in their lifestyles.

The chart below provides information on the retail dairy market in Ireland in 2009 (excluding independent/doorstep sales).



(Dairy: Food for Life Annual Review Plan 2009&2010. NDC)

- (a) Using the information provided in the chart, comment and elaborate on consumer consumption of milk and dairy products in Ireland. (20)
- (b) Give an account of protein and refer to:
- the structure of an amino acid
  - how a peptide bond is formed
  - properties.
- (28)
- (c) Describe one process used by manufacturers to prolong the shelf life of milk. In your answer refer to:
- name of process
  - how the process is carried out
  - the effect of the process on the nutritive value of milk.
- (12)
- (d) Comment and elaborate on the growing popularity of foods produced by small businesses and home enterprises. (20)

**Q1 Section A 2010**

1. Complete the following in relation to the digestion of proteins. (6)

Organ / Gland	Secretion	Enzyme	Substrate	Product
Pancreas	Pancreatic Juice			

**Q2 Section A 2010**

2. Name three properties of sugar and state one culinary use of each. (6)

Property	Culinary use
1.	
2.	
3.	

**Q1 Section A 2009**

1. In relation to carbohydrate explain the property *dextrinisation*. (6)

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**Q2 Section A 2009**

2. Identify a vitamin necessary for the absorption of each of the minerals listed below. (6)

Mineral	Vitamin
Calcium	
Iron	



**Q1 Section A 2008**

1. In relation to protein describe the formation of a peptide bond/link. (6)

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**Q2 Section A 2008**

2. Give one main function of potassium. (6)

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List two good sources of potassium in the diet.

- (i) \_\_\_\_\_ (ii) \_\_\_\_\_

## Q1 Section B 2008

1. 'Fat is an essential part of our diet. Fat has health benefits but it also has a lot of negative aspects. Consumers must make informed decisions on the amount and type of fat included in their daily diet.'  
(Consumer Choice)

The following table provides information on three commonly used products.  
(Typical % values per 100g).

Constituents	Extra Light Spread	Original Spread	Butter
Energy	188 kcal	531 kcal	744 kcal
Fat	18g	59g	82.2g
Saturated fatty acids	5.1g	12g	52.1g
Monounsaturated fatty acids	4.1g	17g	20.9g
Polyunsaturated fatty acids	8.8g	29.5g	2.8g
Omega 3 fatty acids	1.6g	3.5g	0.6g
Trans fatty acids	0.3g	0.5g	2.9g

- (a) Using the information provided in the table, evaluate each of the **three** products described, having regard to current dietary advice on fat intake. (24)
- (b) Describe the structure **and** give **one** example of **each** of the following:  
• saturated fatty acids  
• monounsaturated fatty acids  
• polyunsaturated fatty acids. (24)
- (c) Write an explanatory note on **each** of the following properties of lipids:  
• rancidity  
• emulsification. (12)
- (d) Explain how (i) advertising and (ii) a person's health status might influence decision making when purchasing dairy products. (20)

**Q1 Section A 2007**

1. Name two methods by which protein can be denatured and give an example in each case. (6)

Method	Example

**Q2 Section A 2007**

2. Complete the following in relation to the digestion of carbohydrates. (6)

Secretion	Enzyme	Substrate	Product
Saliva	Salivary Amylase		
Intestinal Juice	Lactase		

## Q1 Section B 2007

1. "Mandatory fortification with folic acid of most breads on sale in Ireland is the policy recommendation by the National Committee on Folic Acid Food Fortification".  
(Press release 2006).

The following table provides information on the nutritive value of commonly used breads. (Nutritional information per 100g).

	Energy	Protein	Fat	Starch	Fibre	Vitamins	Minerals
White Bread	251kcal	8g	1.7g	43.3g	3.6g	2.8mg	Iron 1.7mg Calcium 100mg
Wholemeal Bread	241kcal	9.6g	3.1g	40.7g	6.0g	2.23mg	Iron 3mg Calcium 28mg
Crispbread (Ryvita)	318kcal	8.5g	2.1g	65.5g	18.0g	1.91mg	Iron 3.3mg Calcium 86mg
Flour Tortillas	313kcal	8.6g	7g	52.9g	1.4g	Trace	Sodium 1.1g

- (a) Using the information provided in the table, evaluate and compare the contribution that each bread makes to the Irish diet. (24)
- (b) In relation to starch, explain each of the following:
- (i) gelatinisation
  - (ii) dextrinisation. (12)
- (c) Give an account of *folic acid/folate* and refer to:
- (i) sources in the diet
  - (ii) properties
  - (iii) biological functions
  - (iv) recommended dietary allowance (RDA). (28)
- (d) Define food fortification.  
Outline the benefits of fortified foods to the consumer and to the food manufacturer. (16)

**Q1 Section A 2006**

1. Explain each of the following and give one source in each case. (6)

(i) *Cis fatty acid* \_\_\_\_\_

*Source* \_\_\_\_\_

(ii) *Trans fatty acid* \_\_\_\_\_

*Source* \_\_\_\_\_

**Q2 Section A 2006**

2. What is Basal Metabolic Rate (BMR)? (3)

\_\_\_\_\_  
\_\_\_\_\_

List three factors that affect energy requirements. (3)

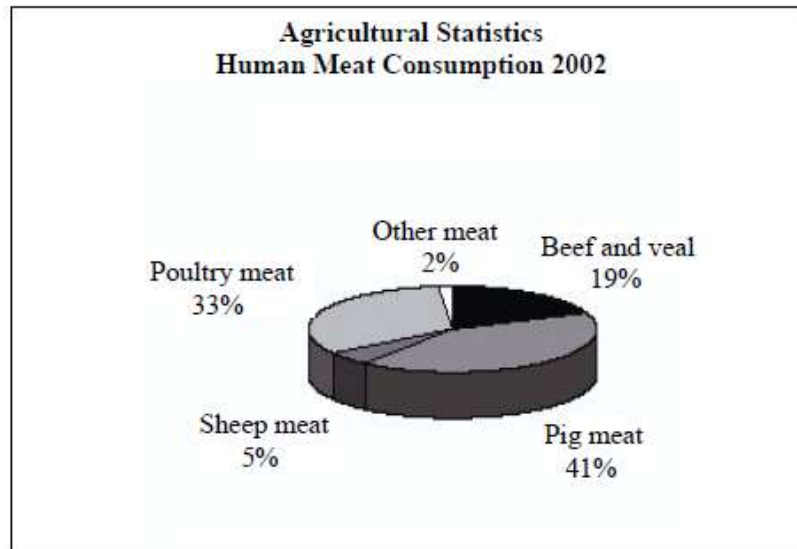
(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_

Q1 Section B 2006

1.



Source: CSO Meat Supply Balance

- (a) Using the information provided in the chart comment on consumer trends in meat consumption. Suggest reasons for such trends. (20)
- (b) Name two proteins present in meat. (6)
- (c) Explain (i) high biological protein (12)  
(ii) essential amino acid.
- (d) Describe (i) the primary structure and (ii) the secondary structure of protein. (24)
- (e) Identify and explain six key factors that a consumer should consider when purchasing protein foods to ensure economy and safety. (18)