



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

**LEAVING CERTIFICATE 2011**

**MARKING SCHEME**

**HOME ECONOMICS  
- SCIENTIFIC AND SOCIAL**

**HIGHER LEVEL**



*In developing the marking schemes the following should be noted:*

- *In many cases only key phrases are given which contain information and ideas that must appear in the candidate's answer in order to merit the assigned marks*
- *The descriptions, methods and definitions in the scheme are not exhaustive and alternative valid answers are acceptable*
- *The detail required in any answer is determined by the context and the manner in which the question is asked, and by the number of marks assigned to the answer in the examination paper. Requirements and mark allocations may, therefore, vary from year to year.*
- *Words, expressions or phrases must be correctly used in context and not contradicted, and where there is evidence of incorrect use or contradiction, the marks may not be awarded.*

## **Instructions to Candidates**

- Section A**      There are **twelve** questions in this section.  
Candidates are required to answer any **ten** questions.  
Each question carries **6** marks.
- Section B**      There are **five** questions in this section.  
Candidates are required to answer **Question 1 and any other two questions**.  
Question **1** is worth **80** marks.  
Questions **2, 3, 4** and **5** are worth **50** marks each.
- Section C**      There are **three** questions in this section.  
Candidates are required to answer **one** elective question to include **part (a)** and either **part (b) or part (c)**.  
**Candidates who submitted Textiles, Fashion and Design coursework for examination may attempt only Question 2 from this section.**  
Electives **1** and **3** are worth **80** marks each. Elective **2** is worth **40** marks.

## Section A

Answer any ten questions from this section.  
Each question is worth 6 marks.  
Write your answers in the spaces provided.

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

Classification	Example	Food Source
Monosaccharides	glucose fructose galactose	fruit fruit , honey digested milk
Disaccharides	sucrose lactose maltose	table sugar milk barley
Polysaccharides	starch cellulose pectin, glycogen	potatoes fruit & vegetables fruit

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

- (i) fat soluble, insoluble in water, soluble in organic solvents
- (ii) heat stable, destroyed by prolonged high temperatures
- (iii) destroyed by oxygen

3. State three effects of calcium deficiency on the body. (6)

- (i) rickets,
- (ii) osteoporosis
- (iii) osteomalacia, osteopenia, tooth decay, poor blood clotting, irregularity in muscle contractions, poor functioning in nerve cells

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

Food	Type of Protein
Fish	myosin, collagen, actin
Eggs	albumin, globulin, vitellin, livetin
Wheat	gluten, gliadin, glutenin

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

**Blanching** results in loss of vitamins, these vitamins are water soluble, lost at high temperatures; if foods are not frozen quickly (**slow freezing**), ice crystals will be large and vitamins will be lost when food defrosts; a certain loss of vitamin B<sub>1</sub> and C on **thawing** of vegetables if not cooked from frozen.

6. Complete the following table in relation to food additives. (6)

	Example	Function	Example of use
Antioxidants	Vitamins A, C, E	prevents oxidative rancidity	fats, cooking oils, crisps, biscuits, stock cubes, cheese spread
	BHA		
	BHT	prevents oxidation	

7. Name **one** method used to tenderise meat **and** explain the principle involved. (6)

**Hanging** – animals rested before slaughter to allow glycogen to build up in their muscles. After slaughter muscles stiffen in rigor mortis, making the meat tough. During hanging the glycogen changes to lactic acid, which helps to tenderise the meat. Proteolytic enzymes present in the meat help to break down fibres.

**Mechanical breakdown** – pounding the meat with a meat hammer or piercing with knives helps to tenderise the meat by breaking down the meat fibres.

**Mincing of tougher cuts of meat** breaks down the meat fibres.

**Tenderisers** – sprinkled on meat before cooking these contain proteolytic enzymes which breakdown the meat fibres making them more digestible e.g. papain, bromelin.

**Marinating** – before cooking soaking or coating meat with a marinade mixture e.g. oil, wine, lemon juice/vinegar and flavourings helps to tenderise the meat.

**Slow moist methods of cooking** tenderise the meat fibres – e.g. stewing, braising.

8. Name **three** common food poisoning bacteria. (6)

(i) **clostridium botulinum, clostridium welchi**

(ii) **staphylococcus aureus**

(iii) **salmonella, listeria, e. coli etc.**

9. Identify **three** components of the *Management Process*. (6)

- (i) **input**
- (ii) **throughput**
- (iii) **output**

Give an example of when the *Management Process* may be used.

**Meal planning; money management; problem solving; home management; decision making etc.**

10. What is Family Income Supplement (FIS)? (6)

**A weekly payment for families (including lone parents) where the earner is in low paid employment. F.I.S. payment is 60% of the difference between the net family income and income limit that applies to the family.**

State **two** conditions that must be fulfilled in order to qualify for FIS.

- (i) **be in full time employment (+19 hours a week)**
- (ii) **have at least one dependent child; have income below a fixed amount for the family size.**

11. Outline **three** conditions that are generally required in order to qualify for a mortgage. (6)

- (i) **amount borrowed, 10% deposit required, term of loan**
- (ii) **proof of income, steady income, good credit record**
- (iii) **mortgage protection policy, mortgage indemnity bond, property in good condition etc.**

12. What information does **each** of the following symbols convey to the consumer? (6)

(i)

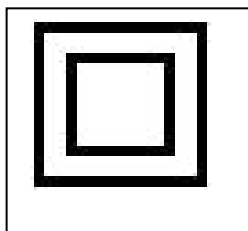


**Goods comply with European standards of safety.**

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(ii)



**Appliance has double insulation.**

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## Section B

Answer Question 1 and any other two questions from this section.  
Question 1 is worth 80 marks. Questions 2, 3, 4 and 5 are worth 50 marks each.

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)

*4 points @ 5 marks each / one reference to each product  
Allow 2 marks for a simple analysis of the chart  
3 marks for elaboration e.g. comment on consumer consumption*

**Milk** – Highest at 39% HBV protein food, nutrient dense food; used on its own and in cooking; widely available; available as UHT, condensed, evaporated and powdered milks; many varieties available e.g. flavoured milks; fortified; health conscious can choose low fat and skimmed versions etc.

**Yogurt** – second highest consumption- can be used for drinks, soups, sauces, dressings, savoury dishes, desserts; it can be substituted for cream; used as a topping for cereals and fruit; tasty, convenient snack; nutritious – high in HBV protein and calcium; easily digested; readily available, in wide variety of flavours; low fat or reduced fat varieties for those on special diets; bio yogurts popular as studies have shown they help the digestive system etc.

**Cheese** – second lowest consumption, HBV protein food; rich in calcium and protein; convenient – little preparation and no cooking; versatile; high energy nutritious snack; value for money; varieties available – cottage, processed, low fat, vegetarian, farmhouse etc.

**Cream and Fats** – smallest consumption group- includes butter, ice cream, cream – high in saturated fat; ice cream high in sugar; many varieties of butter, ice cream and cream available etc.

(b) Give an account of protein and refer to:

- the structure of an amino acid (4 points @ 2 marks each) (8)

**Structure** – a carbon atom at the centre with 4 bonds: H = hydrogen atom, NH<sub>2</sub> = amino group, COOH = carboxyl group, R = varies depending on amino acid.

- how a peptide bond is formed (4 points @ 2 marks each) (8)

**Peptide bond formation** = forms when 2 amino acids join together. The NH<sub>2</sub> group (alkaline) of one amino acid reacts with the COOH group (acidic) of another amino acid. The NH<sub>2</sub> group loses a hydrogen atom. The COOH group loses an OH group. This results in the loss of a water (H<sub>2</sub>O) molecule and is called a condensation reaction.

- properties (4 points @ 3 marks each) (12)

**Properties:**

- **Denaturation** – unfolding of the protein chain resulting in an irreversible change in shape. This can be caused by  
Heat – moist heat collagen changes to gelatine tenderising meat, dry heat causes shrinkage and toughening of meat.  
Acids – lower pH e.g. milk souring bacteria in cheese making, vinegar in marinades to tenderise meat.  
Enzymes – rennin in stomach coagulates milk  
Mechanical action – whisking egg whites  
Salt – increase firmness in cheese
- **Solubility** – insoluble in water except egg white in cold water and collagen in hot water.
- **Maillard Reaction** – reaction between amino acids and carbohydrates resulting in food browning. e.g. toast
- **Elasticity** – some proteins are elastic e.g. gluten
- **Gel Formation** – some can absorb water and form a gel e.g. gelatine used as a setting agent.

(c) Describe **one** process used by manufacturers to prolong the shelf life of milk.

In your answer refer to:

- name of process (2 marks)
- how the process is carried out (3 points @ 2 marks each)
- the effect of the process on the nutritive value of milk. (2 points @ 2 marks each) (12)

Process	How process is carried out	Effects on Nutritive Value
Pasteurisation	Heated to 72°-75 °C for 15-25 seconds then cooled rapidly to below 10 °C.	Loss of vitamin B1 and vitamin C.
Sterilisation	Sealed in to bottles and heated to 104°C-113°C for 15- 40 minutes, then cooled.	Loss of B group vitamins and vitamin C.
UHT	Heated to 132°C for 1 to 3 seconds by pouring it over a heated surface. Then cooled to 10°C and packed in sterile containers.	Loss of vitamin B and vitamin C.
Evaporated	Pasteurised milk is evaporated to half its volume, then homogenised, sealed into cans and sterilised at 115°C for 20 minutes.	Loss of vitamin B and vitamin C.
Dried	Homogenised, pasteurised and then evaporated to 60% of its original volume, spray or roller dried.	Loss of vitamin B. Some amino acids destroyed.
Condensed	Milk is homogenised, pasteurised 72°C-80°C + 15% sugar, evaporated to 1/3 its volume cooled and sealed into cans.	Loss of vitamin B and C.



- (d) Comment and elaborate on the growing popularity of foods produced by small businesses and home enterprises. (20)

*5 points @ 4 marks each*

**Wide range – Ice cream, cheese, chutneys, cakes, breads, jams, smoked fish etc.**  
**Cost & quality – expensive / inexpensive. Quality in comparison to mass produced**  
**Availability – farmers markets and or supermarkets, on line etc.**  
**Perceived benefits – less processed perceived to be more nutritious, healthier etc.**  
**Value to the economy – provides employment locally (direct) and (indirect) suppliers etc.**  
**Uses local produce, many farmers turning to alternative produce to make a living etc.**  
**Good support for local produce in a recession etc.**

2. **‘Diabetes affects people from all walks of life, from the very young to the very old and is now considered an epidemic that is exploding across the world.’**

*(World Health Organisation)*

(a) Write an informative account of diabetes.

Refer to:

- types (*6 points @ 2 marks each*)

(12)

Type 1 - (insulin dependent, juvenile or childhood onset), deficient insulin production and requires daily administration of insulin.

Type 2 - (non insulin dependent or adult onset) results from the body’s ineffective use of insulin.

Type 2 comprises 90% of people with diabetes and is largely the result of excess body weight and physical inactivity. Previously associated with adults only but now also occurring in children.

Gestational - is hyperglycaemia with onset or first recognition during pregnancy.

- symptoms (*3 points @ 2 marks each*)

(6)

*e.g.* frequent urination, thirst, constant hunger, weight loss, vision changes, fatigue

- specific dietary requirements that should be followed in order to manage the condition. (*4 points @ 3 marks each*)

(12)

*Specific Dietary Requirements*

- Eat 3 regular meals a day to stabilise blood sugar levels
- Reduce sugar intake, use artificial sweetener
- Eat a healthy diet of between 3 and 5 servings of fruit and vegetables a day
- Follow a low glycaemic index (GI) diet
- Reduce saturated fat intake,
- Increase fibre foods and starch based carbohydrate foods

(b) Classify artificial sweeteners and give **one** example of each.

(12)

*2 Classifications @ 3 marks each*

*2 Examples @ 3 marks each*

*Artificial* – Intense sweeteners and Bulk sweeteners

Intense – Aspartame (NutraSweet, Canderel), Saccharin (Hermesetes)

Bulk – Sorbitol, Mannitol, Xylitol, (Splenda)

(c) Outline the uses of sweeteners in food manufacture.

(8)

*2 points @ 4 marks each*

To sweeten food improving flavour and palatability.

Used in slimming and low calorie foods.

Production of diabetic foods/confectionery.

Production of soft drinks.

Used an ingredient in the manufacture of sweets e.g. fudge.

Used in preservation e.g. jam making.

Used as a humectant to prevent food drying out etc.

3. **The organic, home-made food trend may have grown rapidly in the past decade, but in the recession many have returned to cheaper processed food.**

(a) Give an account of the factors that affect a consumer's choice of food. (20)

*5 points @ 4 marks each*

Culture – pasta in Italy, spices in India. Religion – Jews do not eat pig meat etc.  
Sensory aspects – personal preferences, colour, flavour etc.  
Nutritional awareness – current dietary guidelines, perceived benefits, GM foods etc.  
Health status – restricted diets e.g. diabetes, coeliac disease, CHD, allergies etc.  
Marketing and advertising – supermarket layout, position of foods, TV, print media etc.  
Money available – more expensive brands, cuts of meat, eating out etc.  
Eating patterns – lifestyle – convenience foods, ready to eat, fast foods, family meals etc.  
Availability – foods in season, location – fish etc.  
Safety issues – Consumers tend to avoid buying products with health issues etc.

(b) Profile a food of your choice that has undergone extensive processing.  
Give details of **each** of the following:

- name of product – 2 marks
  - stages of production ( 5 points @ 2 marks each)
  - packaging (2 points @ 2 marks each)
  - labelling. (2 points @ 2 marks each)
- (20)

e.g. flour, cook chill meals

**Flour**

Production – cleaning, blending, break rolling, sieving, rolling, air classifying, addition of additives

Packaging – weighed, packed – paper etc.

Labelling – brand name, best before, date, quantity, nutritional information etc.

**Cook chill meals**

Production – cooked, divided into portions, cooled to 3°C within 30 minutes of cooking, then completely chilled within 90 minutes of cooking, stored at temperatures between 1° - 3°C, transported in cold conditions, stored in chilled cabinets.

Packaging – easy to open, aesthetic, economical, reasonably strong, biodegradable or recyclable, e.g. foil containers and cardboard etc.

Labelling – brand name, best before, date, quantity, nutritional information etc.

(c) Outline the protection provided to the consumer by the Sale of Food and Drugs Acts (1875, 1879, 1899 and 1936). (10)

*2 points @ 5 marks each*

Protects the consumer against adulteration and fraud. It is an offence to:

- mix, colour or stain food with any ingredient that would render the food dangerous to human health
- sell any food which is not of the nature or quality expected by consumers.

Gives consumer the right, on payment of a fee, to have food analysed by the Public Analysis Laboratory.

4. 'The performance of the economy has had a significant impact on the family unit.'  
(The Irish Times, 13<sup>th</sup> September 2010)

(a) Outline the role of the household/family as a financial unit within the economy. (10)

*2 points @ 5 marks each*

e.g. Family members who are working contribute to the economy by purchasing food and necessities. Spending creates and maintains jobs.  
Family provides accommodation for family members by purchasing property, stamp duty contributes to economy and to the financial institutions.  
Money Management skills are learned and are essential to the independent running of the family unit.  
Many families are financially independent, however with the recent down turn in the economy some are experiencing financial difficulties and are therefore dependent on state aid.  
Pay taxes which contribute to the national economy and to the running of the country.  
Produces children and therefore a future workforce etc.

(b) Discuss the impact of the following social factors on household income.

- age
- gender
- social class
- culture.

(24)

*4 points @ 6 marks each*

*Age* – income tends to increase as people get older, drop in income on retirement, teenagers can get part time jobs to ease the financial burden etc.

*Gender* – Employment Equality Act, equal pay for all regardless of gender, some managerial positions still male dominated etc.

*Social class* – some from poorer backgrounds leave school earlier without qualifications, may lead to unemployment; middle class backgrounds generally better educational opportunities, more likely to gain qualifications leading to better paid jobs etc.

*Cultural factors* – different cultures value income differently – developing countries income spent on needs, more affluent countries disposable income spent on luxuries; some cultures determine whether women can work outside the home which affects household income; lower socio economic group – in some cases the culture may be not to seek employment which limits household income; traveller communities the culture to stay close to the community that they grew up in, which may limit opportunities for earning etc.

(c) Identify and explain **four** factors that may contribute to varying patterns of household expenditure. (16)

*4 points @ 4 marks each*

Expenditure is relative to each home and the different levels of income.

Level of expenditure needs to correspond with the level of income to prevent getting into debt.

Essential expenditure (Fixed) – mortgage, loans, insurance, utilities (Irregular) – food, clothing, doctor, car  
Discretionary – savings, luxuries, holidays, entertainment.

Household Budget Survey – people on low income spent more on food than those on higher income highest increase in expenditure was for housing, lowest increase recorded for alcohol and tobacco.

Income level, social class influence spending patterns in different homes.

Low income families less discretionary income.

Women's incomes largely devoted to family rather than personal expenses.

Urban homes spend more than rural ones.

Family size, family stages etc.

5. Families are the oldest expression of human relationship and have been continually adapting to change, human development and progress.

- (a) Define the term *family* and explain what is understood by the universality of the family. (10)

Definition (5 marks)

Group of people related to each other by blood, marriage or adoption.

‘The basic unit of society, which acts as a support for its members and which transmits values from one generation to the next.’ (*United Nations*)

‘The natural, primary and fundamental unit group of society.’ (*Irish Constitution*)

Universality (5 marks)

Family is present in all known societies.

The form the family takes may differ from one society to another, but the concept of the family is universal.

- (b) Discuss the roles and responsibilities of family members **and** explain how these roles change through the life cycle of the family. (24)

6 points @ 4 marks each

Children’s Roles and Responsibilities

Son/daughter/brother/sister/grandchild.

Responsibilities influenced by age but include showing respect, learning to behave in a socially acceptable manner, acquiring knowledge informally and formally, achieving gradual independence.

Adolescents

May have extra responsibilities babysitting, helping younger children with homework, contributing to decision making and running of the home.

Parents’ Roles and Responsibilities

Mother/Father/Spouse

Reproduction; Nurturing; Socialisation; economic; education; caring for each other; caring for the elderly.

Grandparents’ Roles and Responsibilities

Grandparent/spouse

As people tend to live longer nowadays and are generally in good health, they play a prominent role in family life.

Spending time with their children/grandchildren; childcare; financial help for their families; emotional support for children/grandchildren; passing on values e.g. respect and life experiences etc.

- (c) Give an account of **four** factors that enable older people to maintain their independence. (16)

4 points @ 4 marks each

- Social welfare payment and medical cards allow people to be financially independent within the family.
- Free travel allows people to travel, keep in touch with friends and family.
- Community care focuses on keeping elderly in their homes rather than taking them into hospitals.
- Good family and neighbours can help older person maintain their independence by calling regularly and offering help if needed.
- Different housing options can help older person maintain independence if no longer able to live alone e.g. sheltered housing schemes.
- Voluntary schemes such as *Meals on Wheels* offers nutritionally balanced meals at a low cost.
- Financial security e.g. pension.
- Being active community members etc.

## Section C

Answer one elective question from this section.

Candidates who submitted Textiles, Fashion and Design coursework for examination may attempt only Question 2.

### Elective 1 – Home Design and Management (80 marks)

Candidates selecting this elective must answer 1(a) and either 1(b) or 1(c).

1.(a) Different building styles have evolved with increasing population and advancement in construction technology. There are reasons for the development of every housing style.

- (i) Identify **three** housing styles commonly found in Ireland today and suggest reasons for the popularity of each. (24)

*3 points @ 8 marks each*

- Traditional – neo Georgian etc – proportions and elegance
- Modern – minimalist, lots of light – easy to care for and maintain
- Old style cottage – popular in tourist areas in keeping with local environment
- Restoration of old houses - proportions and elegance, grants available
- Terraced, semi detached, detached popular in towns and cities as many people are urban dwellers, starter homes
- Bungalows dormer bungalow 2 story housing popular in rural areas as sites and building costs lower
- Apartment blocks – shortage of space, increasing population, less maintenance
- Complexes (including a variety of town houses and apartments) often enclosed behind security gates– suit people starting off on the property ladder and older people downsizing – safety, investment etc.

- (ii) Outline the procedures involved in obtaining full planning permission. (12)

*4 points @ 3 marks each*

Full procedure expected for full marks.

Notice of intention/planning permission published in a local newspaper, pay fee and lodge detailed application to local planning authority, site notice erected, public inspection- any member of the public is free to inspect the plans, site inspection by planning officials, permission granted or refused with reasons given for refusal.

- (iii) Set out details of **one** piece of current legislation which regulates house building standards. (14)

*Name legislation 4 marks*

*2 points @ 5 marks each*

**National House Building Guarantee Scheme (Homebond)** – registered builders, house inspected three times during construction, certificate is issued if house meets required standards; certificate guarantees against loss of deposit if builder goes bankrupt and against major structural defects within ten years; many lending agencies require that new houses have a Homebond certificate; scheme is run by NHBG Company and the Dept. of Environment Community and local Government.

**Building Regulations Act 1991** – sets out rules in relation to areas of house design and construction to ensure that houses are safe and comfortable living spaces for occupants. Regulations apply to materials used, construction standards, insulation, heating, lighting, ventilation and waste disposal. It is the responsibility of the local authority to enforce this legislation.

and

**1.(b) Most energy used in the world is generated from non-renewable energy sources.**

(i) Discuss **one** non-renewable source of energy used in the home.

Refer to:

- source (1 point @ 3 marks)
- advantages/disadvantages (2 points @ 4 marks each)
- sustainability (1 point @ 4 marks)

**(15)**

Source	Advantages/Disadvantages	Sustainability
<i>Electricity</i> - energy released by burning fossil fuels, rotates a turbine which powers generator to produce electricity. Electricity passes through transformers to reduce the voltage and make it suitable for use in the home.	Clean, efficient. Many uses heating, lighting and to power appliances.  Cost to the consumer– expensive.	Coal, gas, oil and peat used to produce electricity – limited and non renewable. Wind, solar power and hydro-power renewable/sustainable.
<i>Oil</i> – fossil fuel decayed plant and animal remains buried between layers of earth and rock, subjected to heat and pressure. Oil rigs drill for oil on land and at sea, crude oil refined before use.	Clean, efficient. Produces little waste or pollution when burned Many uses - heating rooms and water and cooking.  Cost to the consumer – very expensive and continues to rise. Cost dependent on the global economy.	Reserves limited with consumption rising. Oil exploration very expensive.
<i>Gas</i> – Natural and bottled (LPG) Fossil fuel occurring naturally under the seabed; Ireland has an indigenous supply off the south coast and this is piped ashore. Due to growing demand some now imported.	Natural gas burns completely and does not pollute the atmosphere; requires no refining and little processing before use.  Can be dangerous if installed or used incorrectly.	Non-renewable, reserves are limited. Consumption worldwide is increasing.
<i>Solid fuel</i> – coal is a fossil fuel in beds under the earth’s surface. It must be mined to extract it from underground.	Coal produces more heat than turf or wood; relatively cheap to produce; smokeless coal available; used to generate electricity and for heating space and water.  Burning produces ash, soot and smoke. It produces more CO <sub>2</sub> than gas or oil and more sulphur dioxide and nitrogen oxides, so contributes greatly to atmospheric pollution.	Supplies are finite but reserves are large and more evenly distributed throughout the world than oil or gas. Ireland imports most of its coal.
<i>Solid fuel</i> – turf/peat consists of partially decomposed remains of plants which have accumulated in water logged areas where climate is relatively cool. Bord na Mona supply briquettes and machine turf .	Turf/peat relatively cheap; briquette (smokeless) available.  Burning produces ash, soot and smoke.	Turf is non- renewable. Some areas are in immediate danger of depletion.

- (ii) Describe **three** ways in which the design and construction of a house can help reduce energy consumption. (15)

*3 points @ 5 marks each*

**Solar systems** – e.g. passive solar architecture house orientation, layout, glazing and insulation is designed to make full use of solar energy; active solar heating i.e. solar collectors convert sunlight into heat; solar photovoltaic systems i.e. convert solar energy to electricity

**Large windows** on south facing walls- solar energy giving heat and light

**Windows** – double glazed.....

**Insulation** in roof, attic and walls.....

**Heating** - zoned heating, room thermostats and timers, geothermal

**BER** - a low BER rating e.g. A1

**Timber framed houses**...

**Sensor lighting**...

**Cavity walls**... etc.

or

- 1.(c) ‘It’s very easy to underestimate the value lighting has on our well being and mood.’  
(Ireland’s Home Interiors & Living Magazine August 2010)

- (i) Discuss the principles that should be considered when planning a lighting system for a family home. (12)

*3 points @ 4 marks each*

- Plan at earliest possible stage during construction.....
- Include the following types of lighting –general, task and accent.....
- Sufficient lighting for the size of the room.....
- Consider function of the room.....
- Avoid glare, make use of shades.....
- Include light from different sources, natural and artificial.....
- Allow flexibility – dimmer.....
- Safety....
- Maintenance – easy access for replacing bulbs and ease of cleaning.....

- (ii) Name and explain **three** properties of light.  
In **each** case give an example of its application in the home. (18)

*3 points @ 6 marks each*

**Reflected** – rays of light bounce off a shiny surface – glazed ceramic tiles, mirrors, white ceiling.

**Refracted** – rays of light bend when they pass through thick glass e.g. glass bricks, frosted glass.

**Diffused** – rays are scattered when they pass through translucent substances or hit non reflecting surface e.g. opaque lamp shades.

**Absorbed** – dark and mat surfaces absorb light rays e.g. dark colours on walls make room appear smaller.

**Dispersed** – rays of light that pass through a prism or crystal break down in to their component colours e.g. crystal chandelier.



## Elective 2 – Textiles, Fashion and Design (40 marks)

Candidates selecting this elective must answer 2(a) and either 2(b) or 2(c)

2.(a) A good school uniform not only helps to develop a sense of pride but also helps to promote each individual school.

(i) Sketch and describe an outfit suitable for wear as a school uniform. (10)

*Sketch 4 marks  
Description 6 mark*

(ii) In relation to the outfit give details of:  
• how **three** principles of design have been applied  
• how the outfit is suitable for purpose. (15)

*3 principles @ 3 marks each  
2 points @ 3 marks*

Principles of design i.e. balance; proportion; emphasis; rhythm; harmony  
Suitability for purpose - durability, ease of care, cost, comfort etc.

**and**

2.(b) Write a profile of **one** fabric manufactured from natural fibres.

Refer to:

- fibre production (*3points @ 2 marks each*)
  - fibre properties (*2 points @ 2 marks each*)
  - identification of fibres using the burning test (*5 marks*)
- (15)

**or**

2.(c) Ireland has an international reputation for the design and manufacture of quality clothing.

(i) Name **three** major sectors in the Irish clothing and textile industry. (3)

*3 points @ 1 marks each*

Menswear; women's wear; children's wear; knitwear; leisure/sportswear;  
accessories/hosiery; lingerie; footwear etc.

(ii) Explain how **each** of the following impact on the design and construction of clothing:  
• fashion trends  
• lifestyle  
• cost. (12)

*3 points @ 4 marks each*

*Fashion trends* – copy what pop stars and media personalities, royalty are wearing; influenced by what is on the catwalk/fashion designers.

*Lifestyle* – fitness and exercise and more leisure time creates demand for comfortable, breathable, flexible garments, strong but light weight, so fabrics like Lycra and leisurewear i.e. tracksuits; function of clothing will determine design i.e. uniform.

*Cost* – less disposable income so less expensive fabrics and more use of synthetic fabrics in construction; in booming economies clothes constructed with luxurious fabrics and no expense spared etc.

### Elective 3 – Social Studies (80 marks)

Candidates selecting this elective must answer 3(a) and either 3(b) or 3(c)

- 3.(a) ‘Less than 15 percent of Leaving Certificate students in some poorer areas of Dublin are progressing to third level while most schools in south Dublin have a progression rate of 100 percent.’ *(The Irish Times, 16<sup>th</sup> November 2010)*

- (i) Analyse the principle factors that influence educational achievement. (24)

*4 points @ 6 marks each*

**e.g.** intelligence; influence of family; home environment; individual’s work ethic; family size; school attended – locality and school environment; peers; supports for special needs etc.

- (ii) Discuss **four** factors that contribute to the increasing demand for adult and second chance education in Ireland. (16)

*4 points @ 4 marks each*

**e.g.** Increases chances of employment; gain/add to qualifications; improves chances of promotion; self fulfilment; technological changes; to pursue an area of interest/hobby; professional development / keeping skills up to date; socialisation; as a second chance of education to increase literacy and numeracy, availability of courses, Back to Education Allowance (BTEA) etc.

- (iii) Name and give details of **one** contemporary initiative that has improved access for students to third level education. (10)

*Name 2 marks*

*2 points @ 4 marks each*

**e.g.** Distance Learning Courses, Open University courses may be full or part time to facilitate all students.

BTEA available to the unemployed or single parents and those with a disability for 3<sup>rd</sup> level courses  
“Cost of Education Allowance” paid at the start of the year to unemployed or single parents;  
Free fees and maintenance grants.

Higher Education Access Route (HEAR) an admission scheme aimed at improving access to 3<sup>rd</sup> level for students from socially disadvantaged backgrounds- students who qualify must meet basic requirements for the course but may be allocated a place with reduced points.

Scholarships.

Supplementary Admission Route (DARE)-disability access route to education for students with learning difficulties and disabilities they will be given access to assistive technologies and supports in college as well as may have a reduced points entry.

Fás apprenticeships; PLC courses; Level 7 courses HETAC, etc.

**and**

- 3.(b) In Ireland, the last 30 years have seen dramatic social and economic changes.

- (i) Discuss the impact of social change on family life. (20)

*4 points @ 5 marks each*

**e.g.** change is settlement patterns between rural and urban areas; reduction in working hours and increase in leisure time; improvements in the provision of education; improvements in provision of social welfare; changing attitudes to marriage, parenting and traditional roles within the family; increased participation of women in the workforce; legislation on equal pay and employment opportunities; unemployment, emigration - one parent working abroad etc.

- (ii) Assess the effects of decreasing employment opportunities in Ireland today. (10)

*2 points @ 5 marks each*

**e.g.** reduced income – difficulty paying mortgage and utility bills; less disposable income available – non essential spending reduced; more quality time to spend with children; time for low cost activities as a family; family stresses become evident; effects on the individual seeking employment; financial cost to the state for those unemployed; low morale; decrease in rural population as people leave the area to seek employment; emigration etc.

or

- 3.(c) **In 2007, two out of every three women were active in the Irish labour market.**  
(*A Woman's Place: Female participation in the Irish Labour Market. ESRI, 2009*)

- (i) Analyse the factors that have contributed to the increased participation rate of women in the Irish labour market. (20)

*4 points @ 5 marks each*

**e.g.** smaller families; women not having their children until their careers are well established; male unemployment so many women returning to work as the family breadwinner; economic pressures two incomes required to maintain lifestyle; highly educated wish to make use of qualifications; support structures in place e.g. crèches; increased flexibility in the workplace e.g. job sharing, working part time, flexible hours, parental leave, term time etc; equality of opportunity in employment and education etc.

- (ii) Give **two** examples of how legislation protects the rights of people in employment. (10)

*2 points @ 5 marks each*

**e.g.** improved working conditions – issues which impact on health (heating, lighting, ventilation and hygiene) and safety are set down in legislation and monitored by the Health and Safety Authority.  
National Minimum wage Act - Minimum wage.  
Equality Act 2004 prohibits discrimination on certain grounds e.g. gender, marital status, family status age, race, religion, sexual orientation, member of the Travelling Community.  
Organisation of Working Time Act 1997 - working hours and breaks.  
Legal entitlements to include paid holidays, benefits such as maternity leave or disability benefit, parental leave, force majeure, carers leave .  
Protection of Young Person ( Employment) Act 1996 re employees under the age of 16 working conditions-full time employment of children under 16 prohibited, 14/15 year olds light work, 14/15 yr old work max 35 per week, 16-18 yr olds max 40 hr week, under 18's cannot work after 10pm Rest breaks must be allowed -30 mins. every 4 hrs for 14 /15 yr olds- 30 mins. every 4.5 hrs for 16 year olds etc.



**Coimisiún na Scrúduithe Stáit**  
*State Examinations Commission*

# **LEAVING CERTIFICATE 2011**

## **MARKING SCHEME**

### **HOME ECONOMICS – SCIENTIFIC AND SOCIAL FOOD STUDIES COURSEWORK**

## Food Studies Practical Coursework General Marking Criteria

### **Investigation: Analysis/Research - 30 marks**

#### **Research and analysis**

**= 20**

#### **Band A 16-20 marks (very good – excellent)**

##### *Investigation*

- shows evidence of a **thorough exploration** and **comprehensive analysis** of **all** the issues and factors directly relevant to the key requirements of the assignment
- is accurate, derived from a range of sources and presented coherently
- uses evidence from research as basis for making relevant choices in relation to selection of menus/dishes/products

#### **Band B 11-15 marks (very competent – good)**

##### *Investigation*

- shows evidence of **exploration** and some **analysis** of the issues and factors which are generally relevant to the key requirements of the assignment
- is accurate, derived from a range of sources and presented coherently
- uses evidence from research as basis for making relevant choices in relation to selection of menus/dishes/products

#### **Band C 6-10 marks (basic to competent)**

##### *Investigation*

- shows evidence of **exploration** of the issues and factors which are generally relevant to the key requirements of the assignment
- is reasonably accurate, derived from a range of sources and presented coherently
- uses evidence from research as basis for making choices in relation to selection of menus/dishes/products

#### **Band D 0-5 marks (very basic – limited)**

##### *Investigation*

- shows evidence of a **very basic and limited understanding** of the key requirements of the assignment
- some or all of the information is vague and accurate only in parts, presentation lacks coherence
- uses evidence from research as basis for making choices in relation to selection of menus/dishes/products

**All Assignments. - 2 two course meals / 2 dishes / 2 products / menu for day**

**= 4**

**If dish prepared is not investigated -1 / -2 marks in Investigation.**

*(menu – starter/desert = 1 mark, main course = 1 mark)*

*suitable meals / dishes / products having regard to factors identified and analysed in the investigation*

**Menus/main course/dishes must be balanced – accept 3 out of 4 food groups**

**Reasons / selection criteria - (2 x 2 marks)**

**= 4**

*clearly indicates criteria that determined choice of dish or product selected to prepare.*

**Sources including source of recipe - 2 x 1 mark (2 marks)**

**= 2**

## **Preparation and Planning - 6 marks**

- Resources (ingredients incl. costing, equipment) = 3
  - *main ingredients, unit cost, key equipment used as determined by dish (expect cost for all except AOP E)*
- Time allocation / Work sequence = 3
  - Preparation, sequence of tasks, evaluation
  - Band A 3 marks - all key steps identified, correct sequence*
  - Band B 2 marks - some key steps identified or sequence incorrect*
  - Band C 1 mark - few key stages identified and sequence incorrect*

## **Implementation - 28 marks**

- Outline of the procedure followed to include preparation, food preparation processes, cooking time /temperature, serving /presentation, wash-up, tasting/evaluation. = 16  
*(Information / account should be in candidate's own words)*
  - Band A 13 - 16 marks (very good – excellent)**  
*All essential stages in preparation of dish identified, summarised and presented in candidate's own words, in correct sequence with due reference to relevant food preparation process/es used*
  - Band B 9 -12 marks (very competent – good)**  
*Most essential stages in preparation of dish identified, summarised and presented in correct sequence with due reference to relevant food preparation process/es used*
  - Band C 5 - 8 marks (basic to competent)**  
*Some essential stages in preparation of dish identified, summarised and presented in correct sequence with due reference to relevant food preparation process/es used*
  - Band D 1-4 marks (very basic – limited)**  
*Few or any essential stages in preparation of dish identified, summarised and presented in sequence with due reference to relevant food preparation process/es used*
- **Key factors considered** (must relate to specific dish / test) = 8  
**2 x 4 marks**  
*Identification (2) and clear explanation of importance (2) of two factors considered which were critical to success of dish*
- **Safety/hygiene** = 4  
**2 x 2 marks**  
*(must relate to specific ingredients being used / dish being cooked)*  
*Identification (1) and explanation (1) of **one** key safety issue **and one** key hygiene issue considered when preparing and cooking dish/conducting test*

## **Evaluation - 16 marks**

Evaluate the assignment in terms of:

- **Implementation** = 8  
**2 x 4 marks each**
  - Band A -4 marks** - identified and analysed specific weaknesses/strengths in carrying out the task, modifications, where suggested, were clearly justified, critical analysis of use of resources / planning
  - Band B- 3 marks** - identified weaknesses / strengths in carrying out task, some justification of proposed modifications, limited analysis of use of resources / planning
  - Band C- 2 mark** - some attempt made at identifying weaknesses **or** strengths in completion of task, modifications where suggested not justified, reference made to use of resources / planning
- The **specific requirements** of the assignment = 8  
**2 x 4 marks each**
  - Band A 4 marks** - draws informed conclusions in relation to two key requirements of the assignment
  - Band B 3 marks** - draws limited conclusions in relation to two key requirements of the assignment
  - Band C 2 mark** - summarises two outcomes in relation to the assignment

## Area of Practice A – Application of Nutritional Principles

### Assignment 1

*Young children require a diet tailored to their needs.*

Research and elaborate on the nutritional needs and the meal planning guidelines that should be considered when planning meals for children aged 12 to 24 months.

Having regard to these considerations, investigate a range of main course dishes for a family with children of this age. Suggest modifications that may be made to the dishes to ensure that they are suitable for young children.

Prepare, cook and serve **one** of the main courses suitable for the family's main meal of the day.

Evaluate the assignment in terms of **(a)** implementation and **(b)** the specific requirements of the assignment.

#### **Key requirements of the assignment**

- *dietary / nutritional needs with specific reference to **children aged 12 to 24 months***
- *relevant meal planning guidelines with specific reference to **children aged 12 to 24 months***
- *range of main course dishes*
- *modifications that may be made to the dishes to ensure they are suitable for young children*
- *main course dish and reasons for choice.*

#### **Investigation**

**Dietary / nutritional requirements** – *nutritional balance, daily requirements of macro / micro nutrients including protein / cho / fat / iron / calcium requirements as appropriate to the needs of children aged 12 to 24 months with reasons for possible variations, high fibre, Vitamin C / iron absorption, Vitamin D / calcium absorption, possible variations in energy requirements, current nutritional guidelines re nutrient and food intake, etc.*

**Meal planning guidelines** – *use of food pyramid to ensure balance, variety of foods, personal likes and dislikes – do not force children to eat foods they do not like, small frequent meals as children have small stomachs and fill up quickly, correct fluid intake to prevent dehydration – dilute fruit juices, use foods in season, avoid foods high in salt, saturated fat and sugar i.e. convenience foods, introduce healthy snacks between meals e.g. mashed banana, high fibre foods, use brightly coloured / attractive looking foods, foods must be soft – easy to eat with a spoon – mash/puree/cut food into small pieces, foods should be easy to swallow, avoid spicy foods as children's taste buds are not properly developed, introduce new foods gradually, avoid nuts as children could choke or be allergic to them, avoid soft boiled eggs, unpasteurised cheeses, etc.*

#### **Dishes selected - range of main course dishes**

- **must be suitable for children 12 to 24 months**
- **must be a main course.**

#### **Modifications that can be made to the dishes to ensure they are suitable for young children**

#### **Evaluation (specific requirements of assignment)**

*Analysis of findings regarding the nutritional requirements of main course dishes for children 12 to 24 months. Meal planning guidelines – range of main course dishes suitable for children 12 to 24 months, how the selected dish meets the requirements as identified in the investigation.*

## Assignment 2

***Choosing a low Glycaemic Index (GI) diet can be a key factor in reducing a person's risk of illness (such as diabetes and coronary heart disease) and in sustaining an appropriate body weight.***

With reference to the above statement, research and elaborate on **(i)** the glycaemic index and **(ii)** the possible benefits of a low glycaemic index diet.

Investigate and elaborate on the nutritional needs and the factors that should be considered when planning and preparing meals for adults who wish to maintain a healthy weight.

Having regard to the factors identified in your research, suggest a menu for **one** day (three meals) suitable for this group of people.

Prepare, cook and serve the main course of the main meal of the day.

Evaluate the assignment in terms of **(a)** implementation and **(b)** the specific requirements of the assignment.

### Key requirements of the assignment

- *research on the glycaemic index*
- *the possible benefits of a low glycaemic index diet*
- *dietary / nutritional requirements for adults who wish to maintain a healthy weight*
- *relevant meal planning guidelines*
- *menu for **one** day (three meals), chosen main course dish and reasons for choice.*

### Investigation

***Glycaemic Index*** – the glycaemic response is the rate at which our blood sugars rise and fall after consuming carbohydrates, the glycaemic index (GI) is a ranking system for carbohydrates and an indicator of the rate at which the glycaemic response occurs. Foods can be classified as low, medium or high GI and /or can be given a numerical ranking, this ranking system ranges from zero to one hundred - low GI is 55 or less, medium GI between 56 and 69 and high GI 70 or over. Low value GI indicates that the carbohydrate is converted into glucose slowly and raises blood sugars at a slower rate; a high value GI indicates a quicker conversion of a carbohydrate into glucose. The quantity of sugars we consume affects our body's glycaemic response i.e. when we eat a moderate amount of sugar, our body has a greater ability to cope, as there is less pressure on the pancreas to produce insulin to regulate blood sugars. The GI load is another measure that is based on our body's response to carbohydrates, which is a quantity and quality measure e.g. carrots have a high GI value (their sugars are released quickly) but a low GI load (low overall sugar content) etc.

***Benefits of a low glycaemic index diet*** – helps the management of diabetes mellitus, obesity / weight problems, heart disease, behavioural disorders, can enhance athletic performance – low GI foods can provide a sustained source of energy and high GI foods can help to restore energy levels quickly after exercise, helps to avoid energy highs and lows, a person feels full for longer, helps to avoid food cravings, prevents the development of Type 2 diabetes, a low GI diet helps to lower LDL cholesterol etc.

***Dietary / nutritional requirements*** – nutritional balance, daily requirements of macro / micro- nutrients including protein / cho / fat / iron / calcium requirements as appropriate, high fibre, Vitamin C / iron absorption, Vitamin D / calcium absorption, increase phosphorus intake, B vitamins for energy, follow current nutritional guidelines re nutrient and food intake etc.

***Meal planning guidelines*** – use of food pyramid to ensure balanced meals, 1/3 of plate should be of fruit and vegetables – 1/3 low GI carbohydrates, 1/3 divided between lean proteins, dairy, and sources of fat and sugar, breakfast is the most important meal, eat often and little, snack healthily to keep blood sugars and energy levels stable, avoid refined carbohydrate and processed foods ( more refined/processed a food the higher the GI), protein and fat lower the GI of a carbohydrate rich food, combine high and low GI foods to lower the overall GI of a meal, avoid foods high in salt and sugar, choose low fat/ products with polyunsaturated fats, use healthy cooking methods i.e. steaming, stir frying, beverage choices are as important as food choices etc.

### Dishes selected

- **menu for one day (three meals)**
- **should meet the nutritional requirements as identified for adults who wish to maintain a healthy weight**
- **must be a main course**

### Evaluation (specific requirements of assignment)

*Analysis of findings regarding what you learned from the investigation regarding the management of a diet for adults who wish to maintain a healthy weight, factors that should be considered when planning meals for adults who wish to maintain a healthy weight, and to ensure nutritional adequacy, what foods are suitable/unsuitable, what special aspects of meal planning have to be considered etc., how the selected dish meets the requirements as identified in the investigation.*



## Area of Practice B – Food Preparation and Cooking Processes

### Assignment 3

*Microwave ovens are very useful as they are energy efficient and save time.*

Carry out research on microwave ovens in relation to **each** of the following:

- the different types available
- uses i.e. to include foods / dishes that can be prepared or cooked using this type of equipment
- the application of the working principle
- the key points essential for successful use of the microwave.

Prepare, cook and serve **one** of the dishes you have investigated.

Evaluate the assignment in terms of **(a)** implementation, **(b)** the advantages and / or the disadvantages of using a microwave oven.

#### Key requirements of the assignment

- research on **different types** of microwave ovens available
- **uses** i.e. foods / dishes that can be prepared or cooked in microwave
- the application of the **working principle**
- the **key points essential for successful use of the microwave**
- chosen dish and reasons for choice.

#### Investigation

**Types of microwaves available:** Standard / Grill / Combination / Built in / Free standing – combination – a traditional oven / grill with a microwave oven, can be operated independently of each other or in combination, food browns and crisps from the standard oven element or grill and then cooks by electromagnetic waves etc. **Capacity:** 20 – 30 litres, **Wattage:** 800 – 1,000 watts, **Special Features** – touch controls, child safety locks, weight and express defrost, double grills, warming drawers, anti-bacterial coating, varying colours/finishes, built-in housings etc.

**Uses:** **Defrosting** – meat, fish, breads etc. **Reheating** – pre-cooked dinners, vegetables, milk etc. **Melting** – chocolate, butter etc. **Boiling** – water, milk etc. **Cooking** – meat, fish, cakes, vegetables, steamed puddings, stewing fruit, sauces etc. **Sterilising** – babies' bottles, jam jars etc. **Drying** – herbs etc.

**Working principle:** magnetron converts electrical energy into electro-magnetic energy, waves pass into microwave via wave guide, wave stirrer distributes waves evenly, waves are **reflected** off the metal interior so food does not need turning, **transmitted** through container holding the food, microwaves are attracted to and **absorbed** by water, fat and sugar present in most foods, high frequency electric magnetic waves penetrate the food to a depth of 2-4 cm and cause the molecules in it to vibrate rapidly, as they vibrate they cause friction which produces intense heat in the food, as microwaves only penetrate 3 cm into the food, food thicker than this cooks by conduction, any water present in the food is driven to the surface and together with the absence of external heat prevents the food from browning and crisping etc.

**Key points essential for successful use of the microwave:** allow standing time as the cooking of food is continued during this time otherwise food may be undercooked, specific microwave recipes must be used for certain foods e.g. bread and cakes, as conventional recipes do not work, light porous foods and foods with a high percentage of fat and sugar cook rapidly, dense foods will slow down the rate at which the microwaves penetrate the food, the larger the amount of food and the colder the food the longer the time required to cook, cover foods with kitchen paper, cling film etc. to prevent food from drying out, large food items should be turned regularly to ensure even cooking, liquid foods should be stirred from the outside towards the centre to distribute heat evenly, foods should be arranged in circles with thickest part facing outwards as this is the first to come in contact with the microwaves, foods with a skin e.g. sausages, egg yolks, tomatoes, & potatoes need to be pierced to prevent bursting during cooking, calculate cooking time having regard to the wattage of the microwave oven etc.

**Dishes selected** – must be a dish from research suitable for cooking in the microwave

**Evaluation** (as specified in assignment) - advantages and / or disadvantages of using a microwave oven.

## **Area of Practice C: Food Technology**

### **Assignment 4**

***Home baking is becoming increasingly popular for many different reasons.***

Carry out research on (i) the rise in popularity of home baking and (ii) commercially available confectionery (range of products, prices etc.).

Investigate **one** method of making muffins **or** cupcakes. Elaborate on the method and explain the principle involved.

In relation to the product chosen (muffins **or** cupcakes), list the variations that can be made.

Describe how you would store the product in order to keep it fresh.

Prepare and bake one of the products ( either muffins **or** cupcakes) that you have investigated

Evaluate the assignment in terms of **(a)** implementation, **(b)** practicability of home baking, and **(c)** cost of home baked product in comparison to a similar commercial variety.

#### **Key requirements of the assignment**

- *research on the rise in popularity of home baking*
- *research commercially available confectionery ( range of products, prices etc.)*
- *investigate **one** method of making muffins **or** cupcakes*
- *elaborate on the method and explain the principle involved*
- *list variations that can be made of muffins **or** cupcakes*
- *storage containers (for muffins **or** cupcakes)*
- *chosen product and reasons for choice*

#### **Investigation**

**Research on the rise in popularity of home baking** – *cheaper, people have more free time, TV – celebrity chefs, TV programmes have made cup cakes popular, growing popularity of artisan foods, farmers/ food markets / fairs, helps families bond, keeps children entertained on holidays, healthier option - no additives, restricted diets e.g. coeliac, health concerns – low fat, increased range of convenience products- cake mixes etc., food samples / tasters in shops, marketing, packaging etc.*

#### **Research commercially available confectionery**

**Research may include** *definition of ‘commercial confectionery,’ range of products, brands, quantity/weight, ingredients, nutritive value, packaging/containers, labelling, shelf life, cost etc.*

#### **Method of making muffins **or** cupcakes and the principle involved.**

**Creaming** – *butter and sugar are creamed together by hand or electric mixer until light, fluffy and becomes paler, increases in volume (8 – 10 mins) sugar crystals cut into the fat, tiny air bubbles are created and incorporated to give a delicate light texture when baked, eggs are added at a low speed to prevent curdling, the yolks emulsify and hold moisture within the formed air cells and create a water-in-fat emulsion, flour is folded in gently, heat of oven causes gas to expand and set the mixture etc.*

**Muffin method** – *liquids (oil, melted butter, milk, yoghurt etc) and dry ingredients are mixed separately and wet mixture is added to dry mixture until just combined – not lump free so the gluten in the flour will not be developed, if over mixed it will not easily rise in the early part of baking and become sticky, heat of oven causes gasses to expand and set the mixture etc.*

**Melting** – *ingredients e.g. butter, golden syrup, treacle are melted together, added to dry ingredients, produce a dense consistency and baking powder or bread soda when moistened produce carbon dioxide which causes the mixture to rise when heated, heat of oven sets the mixture and rising stops etc.*

**Variations of muffins** – *chocolate, apple, blueberry, bran, sultana etc.*

**Variations of cup cakes** - *chocolate mocha, chocolate, vanilla, lemon etc.*

**Suitable packaging for muffins / cupcakes** *e.g. airtight containers – plastic, tin boxes, cling film, tin foil, greaseproof paper etc.*

***If no packaging investigated – 2 marks***

**Dishes selected – Muffins / Cupcakes.**

**Evaluation** (as specified in assignment) - *practicability of home baking e.g. resource issues – cost in comparison to a similar commercial variety etc.*

## Area of Practice D – Dishes illustrating the Properties of a Food

### Assignment 5

***In food preparation many foods are made lighter by the introduction of air, carbon dioxide or steam.***

Define “aeration”

Investigate the culinary applications of aeration in the making of a range of dishes explaining the principle involved in each case.

Prepare, make and serve **one** of the dishes you have investigated.

Evaluate the assignment in terms of **(a)** implementation and **(b)** success in achieving the desired texture.

#### Key requirements of the assignment

- define “aeration”
- investigate the culinary applications of aeration in a range of dishes
- explain the principle involved in each case
- chosen dish and reasons for choice.

#### Definition of ‘aeration’

**Aeration:** introduction of air, CO<sup>2</sup> or steam (gaseous form of water) into a mixture, can be **mechanical** i.e. whisking, creaming, beating, rubbing in etc. **chemical** i.e. adding raising agents e.g. bread soda, baking powder to introduce CO<sup>2</sup>, **biological** i.e. yeast, **steam** – using a liquid to introduce steam when the product is cooking etc. Gasses expand and rise when heated, the gas introduced into the dough will push it upwards and cause it to rise until the heat of the oven sets the gluten, gluten enables the dough to stretch due to its elasticity etc.

#### Culinary applications of aeration in the making of a range of dishes;

##### Principle of each application:

**Air:** natural raising agent, introduced by mechanical means - sieving, rolling and folding, rubbing in, creaming, whisking, air bubbles are introduced into a mixture, heat is also produced because of the friction, slightly sets the protein chains that unravel and line up around the air bubbles, when heated coagulation of the protein chains occurs and this sets the mixture on a permanent basis or it will collapse, the addition of sugar aids aeration, gelatine can be used to set mixtures etc.

**Culinary applications: Sieving** e.g. all cakes and breads etc. **Rolling and folding** e.g. rough puff pastry etc. **Creaming** e.g. cup cakes, maderia cakes etc. **Whisking** e.g. sponge cake, meringue, swiss roll, fruit flan etc.

**Steam:** water in a gaseous state is formed as a result of a physical change in the food, when water present in moist food mixtures reaches 100°C steam is formed, foods cooked this way have an open and uneven texture e.g. choux pastry, flaky pastry, puff pastry, baking must be done at a high enough temperature to flash the water to steam – batters are capable of holding steam until set etc.

**Culinary applications:** e.g. vol-au-vents, profiteroles, pancakes, chocolate soufflé, éclairs, Yorkshire pudding etc.

#### Carbon dioxide:

- **chemical raising agents** - carbon dioxide is produced when a chemical or biological raising agent is used, e.g. baking powder and bread soda rely on the chemical reaction of an acid and an alkali, when moistened they produce carbon dioxide, when flour is wet the gluten has the capability of suspending the CO<sup>2</sup> in the form of tiny bubbles, CO<sub>2</sub> expands when heated, the air bubbles become larger and cause the mixture to rise when heated, when the gas is introduced it forms air bubbles which expand and push the dough upwards until the heat of the oven sets the dough etc.
- **biological raising agent** e.g. diastase in flour converts starch to maltose, enzyme maltase in yeast converts maltose to glucose and invertase converts sucrose to glucose and fructose which produce carbon dioxide by fermentation which is used as a raising agent in baking, yeast feeds on glucose producing alcohol and CO<sup>2</sup> which causes the product to rise, heat of oven sets mixture etc.

**Culinary applications: chemical raising agents** e.g. scones, muffins, cakes, etc.

**biological raising agent** e.g. Chelsea buns, pizza, yeast bread, barm brack etc.

**Dishes selected – must illustrate a culinary application of aeration investigated.**

**Evaluation** (as specified in assignment)

*How successful the culinary application selected was in achieving the desired texture.*

## Area of Practice E: Comparative Analysis including Sensory Analysis

### Assignment 6

**Design and produce a nutritious breakfast cereal as part of a school's healthy eating campaign. The cereal should appeal to teenagers.**

Carry out research on **three** different cereal products that meet the above brief and give a brief description of each.

Your group should choose **one** product to develop and give reasons for the group's choice.

Compile a product specification for the breakfast cereal (appearance, taste etc.) using 6 attributes.

Make the product. Carry out a **descriptive rating test** using line scales or a star diagram.

(Use the same 6 attributes as above). Compile a sensory profile of the product made.

Evaluate the assignment in terms of **(a)** implementation and **(b)** how the product made compares with the product specification.

#### Key requirements of the assignment

- research on **three** different cereal products suitable as part of a school's healthy eating campaign and brief description of **each** cereal product
- selected cereal product and reasons for choice
- compile product specification (appearance, taste etc.) using 6 attributes
- make product
- description, aim and possible outcome of **descriptive rating test** using line scales or a star diagram
- carry out **descriptive rating test** using line scales or a star diagram
- conditions to be controlled during testing

#### Investigation

- Research / Investigation of products appropriate to the testing  
*i.e. investigate and give a brief description of **three** different cereal products, compile a product specification using 6 attributes e.g. appearance, taste, sweetness, colour, aroma etc.* = 20
- **Descriptive Rating Test** using **line scales** or **star diagram**

**Description:** agree on 6 attributes for cereal product to be rated, (class suggest and agree on attributes), rate cereal product for chosen attributes using line scales or star diagram, draw up sensory profile for cereal etc.

**Aim of tests:** to compile a sensory profile of the cereal made

**Possible outcomes:** to have a description of the attributes for the cereal i.e. sensory profile

#### Identification of the conditions to be controlled during the testing

*Conditions specific to the assignment e.g. size, shape and colour of containers used for testing, similar quantities in each sample, coding of samples, hygiene, timing, an understanding of the meaning of each attribute, where testing takes place, dietary considerations etc.*

- **Selected dish/product and selection criteria**

*Selected cereal product.* (1 cereal @ 4 marks) = 4

*State reasons for choice.* (2 reasons @ 2 marks each) = 4

**Sources – 2 x 1 mark** = 2

#### Preparation and Planning

- **Resources** = 3
- **Main equipment needed to carry out assignment**

**Descriptive rating test** – tray, glass of water, cereal product, spoon, score-cards, record sheets, pen etc.

## Work sequence

= 3

*Prepare and cook (if appropriate) cereal product*

**Descriptive Rating Test:** *compile product specification, agree descriptive words and agree attributes, label score cards and record sheet, follow instructions on score cards, set up trays, carry out descriptive rating test, present results using line scales or star diagrams, compile sensory profiles based on group results, evaluate results, tidy and wash up, etc.*

## Implementation

= 16

### Procedure followed when carrying out this aspect of the assignment

*The full sequence of implementation should be given and findings should be presented for the test etc.*

### Descriptive rating test (one product) using star diagram

*Prepare and cook (if appropriate) cereal product*

*Compile product specification, agree descriptive words and agree 6 attributes, label score cards and record sheets with agreed attributes, follow instructions on score card, arrange sample of cereal in containers, set up trays, tasters taste cereal, rate attributes from 0-5 using star diagram for the food sample, complete individual star diagram, collect cards and transfer results of each tester in group onto record sheet, calculate average scores for each attribute, transfer results to group star diagram ( can draw own or cut one from scorecard used and stick on), **compile a sensory profile** for the cereal, tidy, wash up etc.*

### Line scales:

*Agree descriptive words and agree 6 attributes, label score cards and record sheets with agreed attributes, arrange sample of food, set up trays, using 6 line scales, one for each attribute, rate attributes from 0 – 5 using a horizontal line with low rating at left hand end and high rating at right hand end of line, transfer results of each tester in group onto record sheet, average scores for each attribute, **compile a sensory profile** for cereal, tidy, wash up etc.*

- **Key factors considered (any 2 @ 4 marks each)**

= 8

*Key factors that may be considered in order to ensure success in this assignment include - conditions **controlled** during testing ... coding, choice of cereal, degree of doneness, uniformity of samples for testing, sufficient amounts, glass of water/or dry cracker included to cleanse the palate, importance of silence during testing, samples used are from the same batch, use of appropriate words (attributes) familiar to all students etc.*

*(key factors must refer to the actual test carried out)*

- **Safety and hygiene (one safety @ 2 marks + one hygiene @ 2 marks)**

= 4

***Safety:** testers with allergies – nuts, special diets e.g. diabetic, coeliac etc.*

*Good **hygiene** practice with regard to: preparation area and the testing area, handling of samples – use of plastic gloves / disposable glasses etc.*

## Evaluation

- **Implementation (2 points x 4 marks each)**

= 8

*Testing procedures used*

*Key factors when conducting the test*

*Safety and hygiene issues considered*

*Problems encountered and suggested solutions*

*Evaluate efficiency of work sequence*

- **Specific requirements of the assignment (2 points x 4 marks)**

= 8

*How the product made compares with the product specification etc.*

Band A = 4 marks, Band B = 3 marks, Band C = 2 marks

**Appendix 1**  
**General Instructions for examiners in relation to the awarding of marks.**

1. Examination requirements:  
Candidates are required to complete and present a record of **five** assignments for examination.  
In respect of **Areas of Practice**, candidates must complete  
Area A - **One** assignment  
Area B - **One** assignment  
Area C - **One** assignment  
Area D - **One** assignment  
**One** other assignment from either Area A or Area E  
Where a **candidate completes five assignments and does not meet the examination requirements** as set out above, the examiner will mark the five assignments as presented and disallow the marks awarded for the assignment with the lowest mark from AOP A or E
  2. Each Food Studies assignment must include different practical activities.  
Where a **candidate repeats a practical activity for a second assignment**, the examiner will mark the repeated practical as presented and disallow the marks awarded for the repeated practical activity with the lowest mark.
  3. Where a **candidate completes the investigation and / or the preparation and planning and / or the evaluation aspects of an assignment and does not complete the implementation**, the examiner will mark the completed aspects of the assignment as presented. However, marks for **evaluation of implementation**, where attempted, will be disallowed.  
In relation to Assignments 3, 4, 5 and 6 **evaluation of specific requirements** will also be disallowed
  4. Where a **candidate completes the preparation and planning and/or the implementation and /or the evaluation aspects of an assignment, and does not complete the investigation**, the examiner will mark the completed aspects of the assignment as presented. However, marks for **evaluation of specific requirements of assignment**, where attempted, will be disallowed.
  5. Where the **dish / product prepared has not been identified in the investigation**, but fulfils the requirements of the assignment, deduct the relevant marks awarded (-1/-2) under meals /dishes/products in investigation.
  6. **Teacher demonstration** work is **not acceptable**, therefore no marks to be awarded for implementation and evaluation of implementation.
  7. **Dish** selected **not fully compliant** with requirements e.g.
    - An **uncooked dish** selected where a cooked dish specified
    - Dish made **not using microwave** - Assignment 3
    - Dish selected shows **few process skills**
    - Dish selected includes **over use of convenience foods**Deduct – 8 marks from total mark awarded for assignment and insert explanation as highlighted above.
  8. A **dish that does not meet the requirements of the assignment** e.g. a dessert dish prepared instead of a main course; no marks to be awarded.
  9. Where a teacher disallows a practical application, no marks are allowed for **Implementation and Evaluation of Implementation**. All other areas may be credited.
- N.B. All scenarios must be checked with advising examiner before being applied.**  
**When applying a scenario indicate by putting S. 7 - 8 marks with the relevant comment at the beginning of the assignment.**



