

Coimisiún na Scrúduithe Stáit State Examinations Commission

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Eacnamaíocht Bhaile (Eolaíoch agus Sóisialta) Ardleibhéal

Marking Scheme Leaving Certificate Examination, 2007

Home Economics (Scientific and Social) Higher Level



Coimisiún na Scrúduithe Stáit **State Examinations Commission**

Leaving Certificate Examination 2007 HOME ECONOMICS - SCIENTIFIC AND SOCIAL HIGHER LEVEL

Marking Scheme / Summarised **Exemplar Answers**

280/320 MARKS

Instructions to Candidates

Section A There are **twelve** questions. Candidates are required to answer any **ten.**

Section B There are **five** questions. Candidates are required to answer **Question 1 and**

any other two questions.

Section C There are **three** questions. 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 only attempt Question 2 from this section.

Electives 1 and 3 are worth 80 marks each. Elective 2 is worth 40 marks.

Section A

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

1. Name <u>two</u> methods by which protein can be denatured and give an example in <u>each</u> case.

(6)

	Method	Example		
(i)	Heat	Coagulation of an egg		
(ii)	Acid	Milk going sour		
	Mechanical action	Whipping eggs to form a foam		
	Enzymes	Tenderising meat/marinade		
	Salt	Increases firmness in cheese making		

2. Complete the following in relation to the digestion of Carbohydrates.

Secretion Enzyme Substrate Product

Saliva Salivary Amylase Starch Dextrins
Maltose

Intestinal Juice Lactase Lactose Glucose & Galactose

- **3.** (a) List <u>four</u> sources of calcium in the diet: (6)
 - (i) Milk, Cheese, Yogurt, Eggs
 - (ii) Sardines, Tinned Salmon
 - (iii) Bread, Cabbage
 - (iv) Sesame seeds, Figs
 - **(b)** List **two** factors that inhibit the absorption of calcium:
 - (i) Oxalic acid
 - (ii) Phytic acid, fibre, excess fats, low oestrogen levels, excess proteins, incorrect calcium and phosphorus levels, excessive fizzy drinks, tea and coffee

- 4. In relation to eggs explain **each** of the following: (6) (i) Albumin Protein found in egg white (ii) Lecithin An emulsifying agent found in the yolk of an egg **5.** Name A,B,C as shown on the diagram of a bacterial cell (6) A Ribosomes B Flagallae C Cytoplasm 6. Explain **each** of the following methods of cooking. (6) (i) Poaching Cooking food gently in liquid, slightly below simmering i.e. 85°C (ii) Pot Roasting Cooking food in a little fat in a covered pan on the hob. 7. List **two different** functions of An Bord Bia (Irish Food Board) in the Irish Food Industry. (6) (i) To promote Irish food, drink and horticulture industries at home and abroad
 - (ii) Support Irish food and drink companies
 - To implement quality assurance schemes for food e.g. Beef or Egg
 Quality Assurance Scheme
 - To develop national and international markets for Irish food

8. Outline the function of *Omega 3 fatty acids* in the diet.

(6)

To reduce the risk of heart attack, stroke, circulatory diseases and the formation of blood clots, to reduce the risk of certain cancers. Also associated with healthy brain activity. Helps in the control of asthma. Helps to reduce the risk of obesity.

Name **two** foods that are rich in *Omega 3 fatty acids*.

- (i) <u>Salmon</u> (ii) <u>Mackerel, sardines, herring, nut seeds, Soya beans, supplements</u>
 Omega 3 eggs or milk etc.
- 9. State <u>two</u> advantages of using flexible films (plastics) as packaging materials: (6)
 - (i) Relatively low cost, provide a good barrier against moisture and gasses, can be heat sealed, suitable for frozen food.
 - (ii) Easy to handle, light weight, fit closely to shape of food, suitable for printing on.

Identify **one** initiative implemented to address the impact of excess packaging on the environment.

Levy on plastic shopping bags. Landfill levy of €15 per tonne. Recycling schemes run by Local Authorities.

- 10. Identify <u>two</u> requirements of the Fire Safety (Domestic Furniture) Order (1988)/(1995) (6)
 - (i) <u>Fabrics used in beds, cots, pushchairs, cushions, upholstered furniture loose covers</u> and pillows must pass a number of fire safety tests
 - (ii) <u>Permanent safety labels on all items must be securely attached, clearly legible and</u> durable
 - A display or swing-safety label must also be attached to all items
 - Any foam fillings used must be CMHR (combustion modified high resilience) foam or filling

- 11. State <u>one</u> advantage of <u>each</u> of the following types of mortgage interest rates: (6)
 - (i) Fixed rate Less risk if interest rates increase. Borrower knows the exact amount payable each month.
 - (ii) Variable rate The borrower benefits when there is a fall in interest rates pay less.
- 12. State **two** benefits of the *Small Claims Court*.

(6)

- (i) Provides an inexpensive, fast and easy way to resolve disputes about a product
 or service without using a solicitor, processes consumer claims up to the value of
 €2,000.
- (ii) Claims cost the consumer €9.
 - Anyone who has purchased goods or services for private use from a person selling them in the course of business may take a Small Claims Court action

80

(24)

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. "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 bread makes to the Irish diet.

8 points @ 3 marks each

White Bread - High energy value. 8 % Protein required for growth and repair. Low % fat - suitable for low fat diet / compatible with healthy eating guidelines. High % Carbohydrate, mainly starch, provides heat / energy, bottom of the food pyramid. Low % of fibre which is not beneficial. High calcium content good for teeth and bones. Low iron content. Highest % Vitamins.

Wholemeal bread - Lowest energy value. Highest % protein for growth and repair. Highest in fats could be a disadvantage in low fat diets. Medium % fibre prevents constipation etc. Lower % calcium but higher in iron to prevent anaemia. Low in Vitamins.

Crispbread (Ryvita) - Highest energy value. Lower % protein. Highest % starch and highest % fibre - useful to prevent constipation etc. Low in fats and low % vitamins. Higher % calcium, good for healthy bones and teeth

Flour Tortillas – High energy value. High % protein, Highest % fats. High % carbohydrates but lowest % fibre. No vitamins and very high in Sodium which has an adverse effect on high blood pressure.

- **(b)** In relation to starch, explain <u>each</u> of the following:
 - (i) gelatinisation
 - (ii) dextrinisation.

(12)

2 @ 6 marks each

Gelatinisation - Starch grains are heated in a liquid, swell and burst absorbing the liquid to form a thickened solution called a sol/colloidal solution. Used for thickening soups, sauces etc.

Dextrinisation - Starch, when heated forms a brown coloured compound called pyrodextrins or short chains of polysaccharides called dextrins e.g. Toast.

- (c) Give an account of **folic acid/folate** and refer to:
 - (i) sources 2 @ 4 marks each = 8

Wheat germ and bran, Wholemeal bread, Spinach, Milk, Fortified Breakfast cereals, Food Supplements, Oysters, Salmon, Tuna etc.

(28)

(ii) properties - 2 properties @ 4 marks each =8

Water soluble, destroyed by alkalis, destroyed by ultra violet light, stable to acids etc.

(iii) biological functions - 2 functions @ 4 marks each = 8

Development of the brain and the spinal cord, prevents neural tube defects in the unborn child, formation of red blood cells, maintains the immune system, aids protein metabolism etc.

(iv) recommended dietary allowance (RDA) - 1 RDA @ 4 marks

Children: 200ug

Teens/Adults: 300ug

Pregnancy/Lactation; 400/500ug

(d) Define food fortification

Outline the benefits of fortified foods to the consumer **and** to the food manufacturer.

Definition = 4 marks

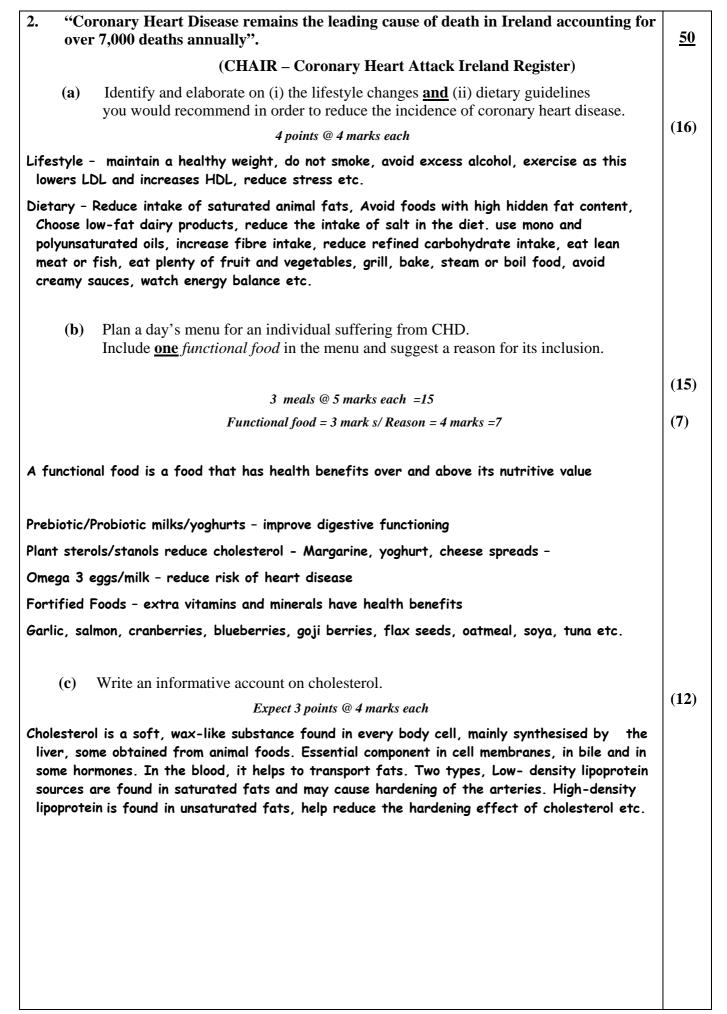
3 benefits @ 4 marks each

(16)

(1 benefit to the consumer, and 1 to the manufacturer and 1 other)

Definition: Food that has added vitamins or minerals to enhance the nutritive content.

Benefits: Replaces nutrients lost in food processing, increase food value of some foods e.g. margarine, addresses public health concerns e.g. addition of folic acid to certain food caters for pregnant women, marketing tool – increases sales by responding to peoples desire to develop healthier eating habits etc.



3. "Sensory analysis is a scientific discipline used to evoke, measure, analyse and interpret reactions to those characteristics of foods as they are perceived by the senses of sight, smell, taste, touch and hearing"

<u>50</u>

Institute of Food Technologists, 1981

(a) Discuss the influence of any <u>three</u> of the senses when choosing, buying or eating food.

3 points @ 5 marks each

(15)

Appearance. This is the visual look of food and includes colour, size shape transparency dullness and gloss. The size or shape and surface of food will influence whether a person will choose the food or not. Mould is acceptable in a blue veined cheese and unacceptable on bread. The colour of food is also very important e.g. strawberries are expected to be red etc.

Flavour. Flavour, has 3 components - <u>Odour</u>, contributes to the pleasure of eating the product e.g. the smell of freshly baked bread. <u>Mouth feel</u> - when the nerves in the mouth are stimulated e.g. coldness of ice cream. <u>Taste</u> is sensed by taste buds, Sweet, Salt, Sour and Bitter etc.

Aroma. Smell evaluates the aroma of food and is important in the appreciation of food. A pleasant aroma makes food appetising etc.

Texture, is determined by touch, mouth feel, sight and hearing. The tenderness of meat the softness of bread, the grittiness of a pear etc.

Sound. Hearing can also influence the consumer, e.g. the sizzle of fried food, the fizz of drinks, the crunch of raw vegetables, the cracking of hard biscuits etc.

(b) Name <u>three</u> categories of Sensory Analysis tests and list <u>one</u> test from each category

3 categories @ 3 marks each = 9

3 tests @ 2 marks each = 6

Preference Tests: Paired Preference, Hedonic Rating Scale, Food Action Rating Scale, Preference ranking.

Difference Tests: Triangle Test, Duo Trio Test, Simple Difference Paired Comparison Test, Directional Paired Comparison Test.

Descriptive Tests: Descriptive Ranking Test, Descriptive Rating Test - one product, Descriptive Rating Test - two products

(c) Set out the conditions necessary for conducting *Sensory Analysis* testing to ensure accurate results.

(20)

(15)

5 conditions @ 4 marks each

Where to test, testing session timing, group size, special dietary conditions, hygiene, equipment, quality of sample, quantity and uniformity of sample, temperature, coding of samples, number of samples, setting of trays, sequencing of samples etc.

4. Refrigeration appliances are an integral part of modern day kitchens.

- (a) Set out details of a study that you have undertaken on a refrigeration appliance. Refer to:
 - (i) type of refrigeration appliance Name = 2 marks
 - (ii) working principle

4 points @ 3 marks each =12

(14)

50

Compressor contains gaseous refrigerant. Motor attached to compressor forces gaseous refrigerant into the condenser. The condenser cools the refrigerant and converts it to a liquid. The liquid refrigerant passes into the evaporator where it changes to a gas drawing heat from inside the fridge. Gaseous refrigerant returns to compressor and cycle begins again. Thermostat disconnects the motor when the fridge temp is between 1°C and 4°C etc.

(iii) guidelines for use

4 points @ 3 marks each

(12)

Avoid opening the door as this will raise the temperature. Cool foods before putting them into a refrigerator or freezer. Cover foods to prevent drying out or cross flavouring. Use food in rotation and use within the recommended time. In a refrigerator always store raw meat and fish below cooked food or dairy foods to prevent bacterial cross contamination. Thaw frozen food in the fridge. Do not over pack, allow air circulation, defrosting and cleaning etc.

(iv) modern features

2 features @ 3 marks each

(6)

Chilled drinks dispenser, gated shelves for tall containers, integrated door, different exterior colours and finishes, internal and external ice-making machines, zoned refrigeration, automatic defrosting, frost-free fridges/freezers, digital temperature display, boost button etc.

(v) energy efficiency rating

2 points @ 3 marks each

(6)

Choosing an appliance with an A or B energy rating, this will cost less to run and cause less damage to the environment. "A" rating is the most energy efficient; "G" is the least efficient etc.

(b) Give a detailed account of the star rating system found on refrigeration appliances.

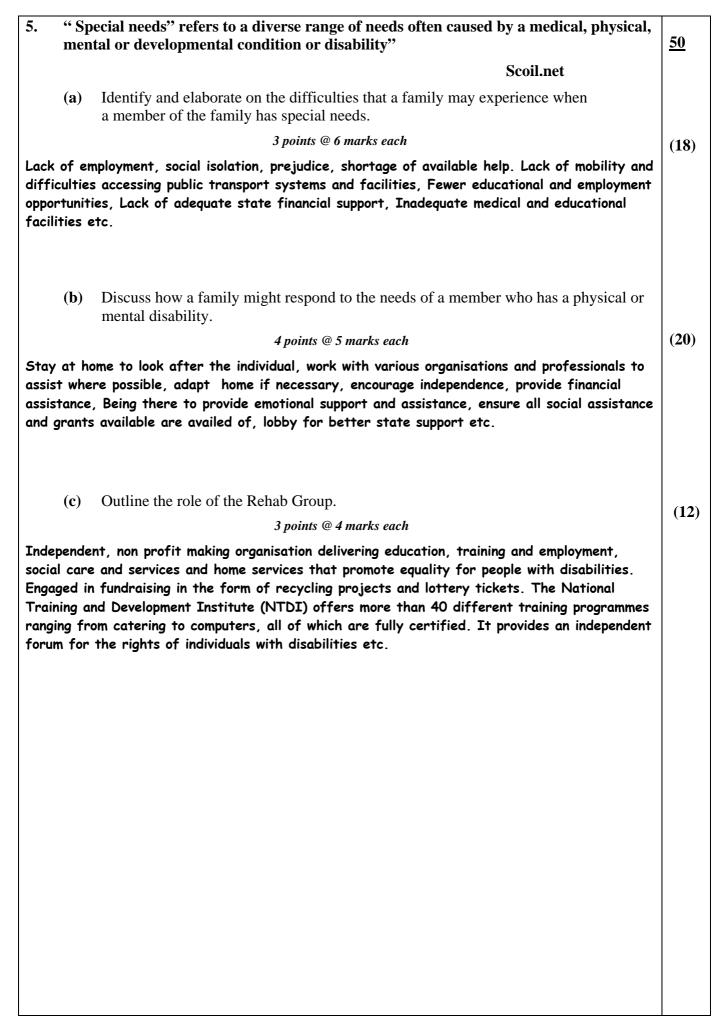
(12)

3 points @ 4 marks each

This is a star rating that applies to the storage of frozen foods.

(Star rating = 1 mark; Temp. =1 mark; Storage = 2 mark)

- One star rating $-6^{\circ}C$, storage 1 week
- Two star rating -12°C, storage 1 month
- Three star rating -18°C, storage 3 months
- Four star rating $-18^{\circ}C$ to $-25^{\circ}C$, storage up to one year, fresh food can be frozen.



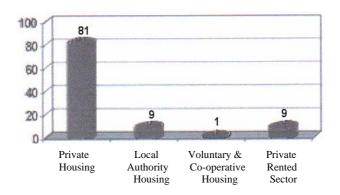
80

Section C

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) Housing in Ireland has undergone many changes in recent years.

Breakdown of the Housing sector in Ireland - 2000



Social Housing

- Source: ICSH publications

(i) Using the information provided above, discuss the provision of housing in Ireland in 2000 **and** comment on the adequacy of housing provision in each sector mentioned.

6 points @ 4 marks each = 24

(24)

<u>Private housing</u> - 81% - very high level of home ownership, higher than EU average, govt policy encourages home ownership e.g. mortgage interest relief, tenant purchases schemes etc. Increased economic prosperity, low interest rates and a growing young population have created the conditions of high demand for home ownership. New accommodation not meeting demands - lack of affordable housing etc. Shortage of serviced development land, increase in price of development land, investor and speculative activity etc.

<u>Social housing</u> – 10% – usually for people on lower incomes or who are unable to afford a private house, 9% provided by Local Authority, 1% by Voluntary or Co-operative housing. Substantial increase in the number of people on waiting lists in the past 5 yrs, 25% on LA list waiting over 3 yrs. Supply of Social housing does not meet demand. Families, disabled and elderly get priority, single people are disadvantaged etc.

<u>Private Rental Sector</u> - 10% - available to those not ready to enter owner-occupation e.g. young single workers or students. High demand for rented accommodation, mainly in urban areas, availability is limited and often of poor quality. Purpose built housing for students provides rental accommodation but availability is limited, rents continue to rise even though house prices have stabilised etc.

(ii) Differentiate between Local Authority Housing and Co-Operative Housing.

2 @ 5 marks each

(10)

<u>Local Authority Housing</u> - Local Authorities make available a range of rented housing to meet a variety of accommodation requirements. Those in need of housing who are unable to provide it from their own resources may apply for local authority housing. The local authority will take in to consideration factors such as household size, income, present accommodation and other special circumstances such as age, disability etc. Houses are allocated to applicants in order of priority etc.

Co - Operative Housing - A number of people who would like to build a house at an affordable price, group together. They share the cost of the site, the builder and the solicitors. Local authorities will provide the site for a minimum fee if at least 75% of the people in the group are on the local authority waiting list etc. (iii) Evaluate the importance of local amenities and services in housing developments. **(16)** 4 points @ 4 marks each e.q. Schools, shops, churches, community centres, transport, play areas, street lighting, refuse collection, water and sewage services, Broadband, Crèches etc. and (i) Discuss the factors to be considered when selecting floor coverings for a **1.** (b) family home. (12)4 points @ 3 marks each e.g. Cost, ease of cleaning, function of room, colour, condition of floor beneath, aesthetically pleasing, consider the flooring used in adjoining rooms durability etc. (ii) Set out details of **one** hard and **one** semi-hard flooring you would recommend for the hallway. In each case refer to: (18)(Type = 3 marks, Properties = Expect 2 points @ 3 marks) $x^2 = 18$ marks (a) Type of flooring - Hard flooring - Ceramic tiles Quarry tiles/ flagstones, - Semi-hard flooring - - Wooden flooring, vinyl / linoleum (b) Properties - as related to floor type e.g. resilient, durable or 1.(c) (i) "Sustainable energy refers to a way we can use and generate energy that is more efficient and less harmful to the environment" **Energy Master, Renewable Energy Solutions** Give details of <u>one</u> type of renewable energy which you would recommend to a person building a new house. Refer to: (a) source (b) sustainability (c) efficiency / effectiveness. (18)Source = 5 marks; Sustainability = 5 marks; Efficiency/effectiveness = 2 points @ 4 marks each Solar energy, wind energy, hydropower, bio-energy/ biomass, geothermal energy. (ii) Describe three different methods of reducing harmful emissions in the environment. (12)3 methods @ 4 marks each Choose natural gas or liquid petroleum gas in preference to coal or oil. Choose smokeless fuels. Switch to gas/electric heating rather than burning coal. Reduce the amount of fuel burnt. Buy energy efficient appliances/equipment as these help to reduce atmospheric emissions. Dispose of fridges/ freezers correctly etc.

Elective 2 - Textiles, Fashion and Design (40 marks) Candidates selecting this elective must answer 2 (a) and either 2 (b) or 2 (c).

<u>40</u>

The increasing involvement of people in sport has led to an increase in demand for trendy, yet practical sportswear.

- 2. (a) The illustration shows a unisex tracksuit.
 - (i) Evaluate this tracksuit with regard to:
 - functional use
 - comfort when wearing
 - how **two** principles of design have been applied in the design of the garment.

Functional use= 1 point Comfort when wearing = 2 points Principles of design = 2 points

- e.g. Balance, Proportion, Emphasis, Rhythm, Harmony etc.
- (ii) Name and describe a fabric construction technique suitable for polyester fabric.

Polyester outer

Mesh lining

Elasticated cuffs

inner drawcord to waist

Knitted ankle cuffs with zips

(8)

(15)

Name = 2 marks; description = 2 points @ 3 marks each

e.g. Weaving, Knitting

and

2. (b) "Raw materials such as wool and linen have been part of Irish life for centuries" Enterprise Ireland

Write up a profile of <u>one</u> natural fabric you have studied under the following headings:

- (i) fibre production 3 points @ 2 = 6 marks
- (ii) fabric properties 2 properties @ 2 = 4 marks
- (iii) fibre identification test. 5 marks

or

- 2. (c) The Irish clothing and textile sector has evolved from Aran jumpers and tweed skirts to much fresher and creative designs.
 - (i) Discuss the work of <u>one</u> Irish designer who has played an important role in this development.

3 points @ 3 marks each

e.g. John Rocha, Philip Treacy, Lainey Keogh, Paul Costelloe, Louise Kennedy etc.

(ii) Outline **two** difficulties affecting the Irish textile industry.

2 points @ 3 marks

(6)

(9)

Very labour intensive but take home pay quite low, difficult to compete with other countries e.g. China, training is very time consuming, language barrier when dealing with potential markets overseas, there is a need for more market analysis, imports are rising from countries with lower labour costs etc.

(17)

Elective 3 - Social Studies (80 marks) 80 Candidates selecting this elective must answer 3 (a) and either 3 (b) or 3 (c). The 1990s has seen significant changes in the employment opportunities available in Ireland Discuss how changes in patterns of work and work availability have been **3.(a)** (i) affected by (a) developing technology (b) the decline in the primary and secondary industries and the growth in the service industries (c) increased educational requirements Developing technology - 2 points @ 5 marks each (10)People only needed in programming or supervisory capacity. Unskilled people in monotonous work. Automation of manual tasks has led to an increase in unemployment among unskilled workers. Manufacturing companies relocating to low cost countries etc. Decline in the primary and secondary industries s & the growth in service industs -2 points @ 5 marks each (10)Due to technology, primary industries- agriculture, fishing etc and secondary industriesmanufacturing, engineering etc. require needed less manual workers. Significant growth in service industries particularly tourist/leisure areas this has increased employment opportunities. Employment in service industry - part time / shift work / low paid etc. Increased educational requirements - 2 points @ 5 marks each (10)Minimum level of education necessary for worthwhile employment has been rising. Leaving Cert standard now essential for most employments, 3rd level requirements needed for career advancement etc. (ii) Explain how improved working conditions have allowed women to participate more fully in the workforce. 3 points @ 4 marks each (12)Flexible hours, parental leave, job sharing, teleworking, career breaks, term time, crèches longer maternity leave, minimum wage, force majeure leave, facilities for working mothers/babies, equal pay etc. Write an informative account of the Protection of Young Person (iii) Employment Act 1996. **(8)** 2 points @ 4 marks each Children under age of 16 prohibited from working fulltime, Children over 14 years may do light work during school holidays, up to a maximum of 35 hours a week. May be employed on an approved work experience for an education programme and may work for up to 8 hours a week during school term. Any child under 16 may be employed in film, theatre, sports and

advertising activities under licence. Rest Breaks must be allowed - 30 mins every 4 hours for 14 to 15 year olds /and every 4.5 hours for 16 year olds. 16 year olds are not allowed to work after 10 pm. etc.

3.(b) (i) Identify **two** groups of people who have difficulty in securing employment (9)**and** discuss reasons for high unemployment among each group. (9)*Identify group =3 marks*, 2 reasons @ 3 marks each for group =6 Groups: Travellers, ethnic minorities, Refugees, People with disabilities, or special needs, People who have ill-health, homeless, People with a criminal record, Early school leavers, unemployment black spots etc. Reasons: Discrimination, Ignorance, Lack of necessary skills, mistrust, No work permit etc. (ii) Outline the effects of unemployment on society Expect 3 points @ 4 marks each (12)Social welfare costs, Social problems - crime, vandalism, violence, Family breakdown, Poverty, Creates inequality in communities, increased emigration, a pattern of unemployment develops in areas etc. or Discuss the function and value of leisure in today's society. **3.(c)** (i) Expect 3 points @ 5 marks each (15)Allows people to relax and unwind from everyday stresses, improves physical well being, develops new skills, introduces challenges, gratifies the senses, enables family bonding, encourages social interaction, sets good example to young children in relation to making use of free time etc. Outline how social and cultural influences impact on our choice of leisure activities. Expect 3 points @ 5 marks each **(15)** Social - socio-economic grouping, geographical location - people tend to be interested in local activities e.g. rugby club, trends e.g. skateboarding, Less social division now foreign travel freely available etc. Cultural - Games associated with particular countries e.g. Basketball - USA, different GAA games associated with different counties e.g. football - Kerry, different styles of dance e.g. Irish dancing, Spanish flamenco, family culture e.g. traditional Irish music etc.

