2014 Section B Q1

1. **Shown below in the table is the cost (€) and percentage (%) of the weekly social welfare allowance required to purchase the foods necessary for healthy eating for four households using three different grocery store outlets.**

	Multiple supermarket	Low cost shop	Local shop
Household 1 Adult man and woman, boy aged 5 years and boy aged 14 years *(Total household requires 8200 calories per day)*	**€132.40 29%**	**€114.80 25%**	**€255.40 56%**
Household 2 Adult man and woman without children *(Total household requires 4400 calories per day)*	**€82.20 25%**	**€65.80 20%**	**€154.70 47%**
Household 3 Woman aged 65+ years *(Total household requires 1800 calories per day)*	**€32.40 14%**	**€27.00 12%**	**€54.00 23%**
Household 4 Single adult woman with a boy aged 5 years *(Total household requires 3400 calories per day)*	**€54.80 21%**	**€45.40 17%**	**€109.00 42%**

(a) Evaluate shopping in the three grocery outlets referred to in the chart above.

Local Shop: this outlet is the most popular outlet amongst all the families. For example, household 1 spends 56% of their weekly allowance in the local shop. These outlets can be very popular due to their location.There is usually a local shop in every town and village. Many locals like to do their shopping in these shops to support local business. They can sometimes be more expensive than a low cost shop or multiple supermarket but people still love the convenience of them.

Low Cost Shop: this is the least popular shop amongst the households. I think this is due to location. Low cost shops are predominantly found in the larger towns and cities which makes them difficult to access for people living in rural parts of Ireland. However, these shops are still used by all households. Low cost shops are full of branded products at low prices which is very attractive for consumers. Each

household spends at least 12% of their weekly allowance in low cost shops which shows us their popularity.

Multiple Supermarket: these supermarkets tend to have cheaper products than the local shop but more expensive products than the low cost shops. These shops tend to be very convenient as they are located in most towns in Ireland. Many of these shops will also provide a home delivery service which would be useful for household 3 and 4. These shops are popular amongst the households with at least 14% of the weekly allowance being spent here.

(b) Apart from family size, give three reasons for the variation in the percentage of income spent on food each week.

Age: the ages of the people within the household can determine the amount of food needed. Household 1 spends a large percentage of income on food due to the ages of the family members. There is a teenage boy in this household who will require a large amount of calories each day. There are also two adults in this household who will also need a large amount of calories. In household 3, there is an older woman. She does not need as many calories as a result of her age.

Gender: gender affects the amount of income spent on food. Males tend to have larger energy requirements than females. As a result, the households that have males in them will end up spending a larger percentage of income on food. In household 3, there is a lone female and we can see that she spends a very small percentage of her income on food.

Activity Levels: the more active someone is, the more food they will need to consume. Household 1 has two adults, a teenager and a child. This is obviously a very active household with two children of school age. As a result, the family needs to spend a larger percentage of their income on. In household 3, the older woman needs to spend less money on food as she will more than likely have a more sedentary lifestyle than someone who is younger than her.

(c) Protein rich foods are a significant cost for many families. Recommend a variety of low-cost protein foods and state how each can be incorporated into a healthy eating plan

Meat/Fish on special offer: this can be incorporated into a healthy eating plan by making healthy, low cost dishes such as Spaghetti Bolognese or Fish Pie.

Dairy products: these can be incorporated into the diet in the form as snacks such as yoghurts or they can be used to make other snacks such as smoothies.

Pulse vegetables: these include chickpeas and kidney beans. They can be incorporated into the diet by adding them to salads.

(d) Give a detailed account of protein and refer to:

• classification (simple and conjugated)

Classification	Group	Sub-group	Examples	Food Source
Simple	Animal	Fibrous	Collagen Elastin myosin	Connective tissue (meat)
		Globular	myoglobin Lactalbumin Ovalbumin	meat Milk eggs
	Plant	Glutelins	Glutelin Oryzenin	Wheat Rice
		Prolamines	Zein Gliadin	Corn/maize wheat
Conjugated	Lipoproteins Phosphoprotein Nucleoproteins chromoproteins		Lecithin Casein Chromosomes chlorophyll	Egg yolk Milk Cell nuclei Green plants

• supplementary value / complementary role

When two low biological value (LBV) proteins are eaten together, they can provide all the essential amino acids needed by the body. This can be seen in beans and toast. Beans are low in methionine and high in lysine. Bread is high in methionine and low in lysine. When these two foods are eaten together, you get a complete protein.

• structure (primary, secondary and tertiary).

Primary Structure: this is the order or sequence of amino acids in protein chains. Amino acids can be arranged in many different ways. Insulin, one of the simplest proteins, contains 51 amino acids.

Secondary Structure: this involves the folding of the primary structure of proteins into definite shapes. Polypeptide chains either fold in on themselves or cross-link with another polypeptide. Examples of the bonds are a disulfide bond which occurs when two sulfurs from two amino acids join together and a hydrogen bond which occurs when a hydrogen from one amino acid and an oxygen from another amino acid join together.

Tertiary Structure: this involves the folding of the secondary structure into 3-D shapes. They are either in a fibrous or globular structure. Examples of the fibrous structure include gluten, elastin and collagen. Examples of the globular structure include ovalbumin and lactalbumin.