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**BIOLOGY-0610/31, 32, 33**  
**TOPIC- ANIMAL NUTRITION**  
**(DIGESTION)**

1 The boxes on the left contain the names of glands which secrete enzymes.

F-v-2

The boxes on the right contain the names of digestive enzymes.


Some glands produce more than one enzyme.

Draw lines to link each gland with the enzyme or enzymes it produces.

Draw **four** lines.

One has been drawn for you.

gland	enzyme
salivary glands	amylase
pancreas	lipase
glands in the stomach lining	protease



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A line is drawn from the 'pancreas' box to the 'amylase' box.

[4]

[Total: 4]

02 (a) Fibre in the human diet contains a lot of cellulose that humans cannot digest.

(i) State two advantages to humans of including fibre in the diet.

1 .....

.....

2 .....

..... [2]

(ii) Suggest which level in a food chain has organisms that have a means of digesting cellulose.

..... [1]

(iii) Name the form of energy that is present in cellulose.

..... [1]

(iv) What is cellulose used for in plants?

..... [1]

(b) Micronutrients are components of the diet that are only needed in very small quantities.

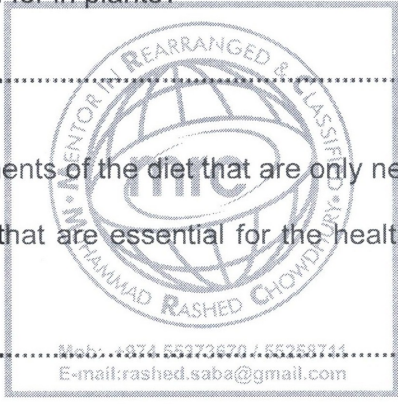
Name two micronutrients that are essential for the healthy development of bones and teeth.

1 .....

2 .....

[2]

[Total: 7]



- 3 (a) Table 3.1 lists some of the food materials that need to be digested, the enzymes that carry out the digestion and the end products.

Complete Table 3.1.

7

[5]

Table 3.1

food material	digestive enzyme	end products of digestion
starch	.....	simple sugars
.....	.....	amino acids
fat	lipase	..... .....

- (b) Amino acids and glucose are carried in the blood from the intestine to the liver.

Describe the processes that occur in the liver when there is an excess of these materials arriving in the blood.

amino acids .....

.....

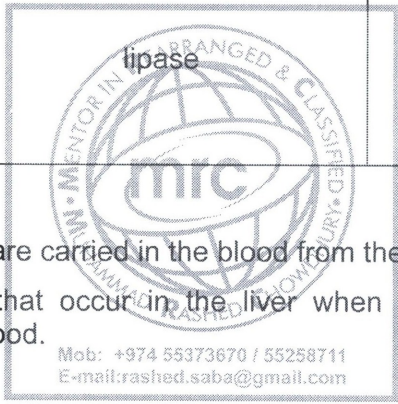
.....

glucose .....

.....

..... [4]

[Total: 9]



4 (a) Enzyme activity is vital in human digestion.

N =

Complete Table 4.1 by choosing appropriate words from the list.

*amino acids*      *amylase*      *cellulose*      *fatty acids*  
*hydrochloric acid*      *lipase*      *protein*      *starch*      *water*

Table 4.1

substrate	enzyme	product
fat	.....	glycerol + .....
.....	protease	.....
.....	.....	maltose

[6]

(b) Maltose is changed into glucose.

(i) Which part of the blood carries glucose?

..... [1]

(ii) Which process, happening in all living cells, needs a constant supply of glucose?

..... [1]

(iii) Excess glucose is stored. Which carbohydrate is glucose changed into for storage?

..... [1]

(iv) Which organ is the main store of this carbohydrate?

..... [1]

(v) Name a hormone that causes glucose to be released from storage.

..... [1]

[Total: 11]



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5 Malnutrition is caused by some imbalance in the diet or lifestyle.

N-V-3

(a) This is a list of some effects of malnutrition.

- constipation
- coronary heart disease
- obesity
- starvation
- tooth decay

Use the list to complete Table 5.1.

Table 5.1

imbalance in diet	effect of malnutrition
insufficient fibre	
insufficient fat and carbohydrate	
high fat diet combined with a low exercise lifestyle	

[3]

(b) In some parts of the world, the **supply** of food does not match the **demand** for food.

Describe **two** ways in which technology has helped farmers to grow more food.

1 .....

.....

2 .....

..... [2]

[Total: 5]

6 Alcohol is a widely used drug.

It has serious effects on many parts of the body, including the nervous system.

(a) (i) Name the organ in the body where alcohol is broken down.

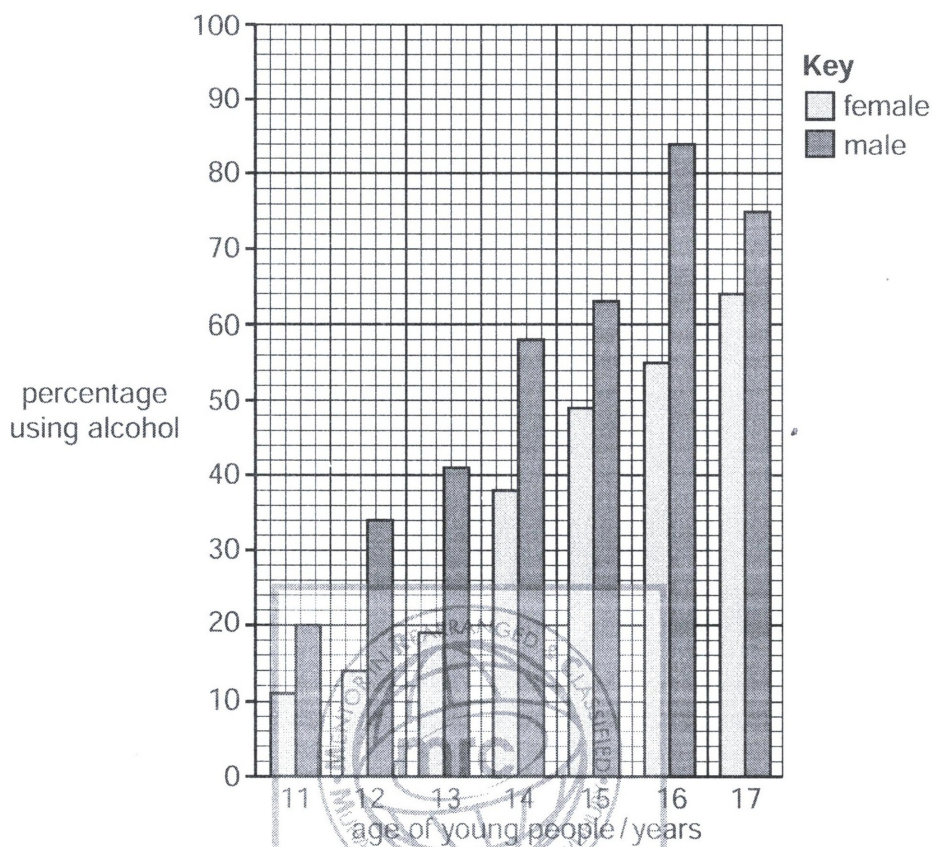
..... [1]

(ii) Suggest how alcohol reaches the brain.

..... [1]

(b) Doctors are concerned that young people in some countries are drinking too much alcohol.

Fig. 6.1 shows the percentage of young people who drink alcohol in a city in one of these countries.



**Fig. 6.1**

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(i) There is a difference in the percentage of males and females who drink alcohol.  
State the age at which this difference is greatest.

..... [1]

(ii) It is not safe to drive a car or motorbike after drinking large amounts of alcohol.  
Explain why.

.....  
.....  
.....  
..... [2]

(c) There are many other social problems caused by young people drinking alcohol.

Describe **three** examples of social problems, other than unsafe driving.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[Total: 8]





6 Table 6.1 gives some details of the digestion of food. Complete Table 6.1.

7

**Table 6.1**

food material	digestive enzyme	source of enzyme	end products
starch	.....	salivary glands +	.....
.....	.....	stomach	.....
fat	.....	pancreas	fatty acids +
			.....

[8]

[Total: 8]



N

7 (a) Describe the role of the liver in glucose metabolism and in fat digestion.

Glucose metabolism .....

.....  
 .....

Fat digestion .....

.....  
 ..... [5]

(b) (i) State what is made into urea in the liver.

..... [1]

(ii) The table gives some details of some components of body fluids.

	blood in capillaries of kidney	liquid filtered from blood before reabsorption	urine
glucose	✓		
minerals	✓		
urea	✓		
water	✓		

Complete the table by showing with a tick (✓) which of the substances are present in the liquid filtered from the blood and in the urine. [2]

[Total: 8]

**08** The terms eating and breathing are often wrongly stated as characteristics of living organisms.

7-V-1-(1)

For  
Examiner's  
Use

(a) Eating is often confused with nutrition.

Define the term *nutrition*.

.....  
.....  
.....  
..... [2]

(b) Breathing is often confused with respiration.

Define the term *respiration*.

.....  
.....  
.....  
..... [2]

[Total: 4]



9 (a) Humans need fibre (roughage) and mineral ions as part of a balanced diet.

N-V-3

Name **four** other food groups that form part of a balanced diet.

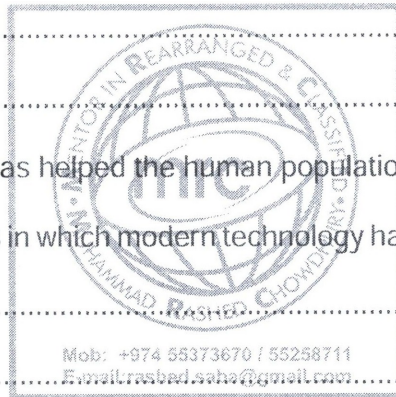
- 1 .....
- 2 .....
- 3 .....
- 4 ..... [4]

(b) Explain the importance of including fibre in the diet.

.....  
.....  
.....  
.....  
.....  
.....  
..... [3]

(c) Greater food production has helped the human population of the world to increase.

Explain **two** different ways in which modern technology has resulted in greater food production.



.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
..... [4]

[Total: 11]

J-V (2)

For  
Examiner's  
Use

10 (a) Table 2.1 shows some of the effects of alcohol and heroin.

Complete Table 2.1 by writing YES or NO in each of the boxes.

One box has been completed for you.

Table 2.1

effect	alcohol	heroin
addiction		
depressant		
can cause liver damage when used in excess		YES

[3]

(b) Tobacco smoke contains harmful chemicals.

State **one** effect of the following chemicals in tobacco smoke:

(i) carbon monoxide;

.....  
..... [1]

(ii) nicotine;

.....  
..... [1]

(iii) tar.

.....  
..... [1]

[Total: 6]



(a) State what is meant by the term *balanced diet*.

7-1-3-(4)

.....

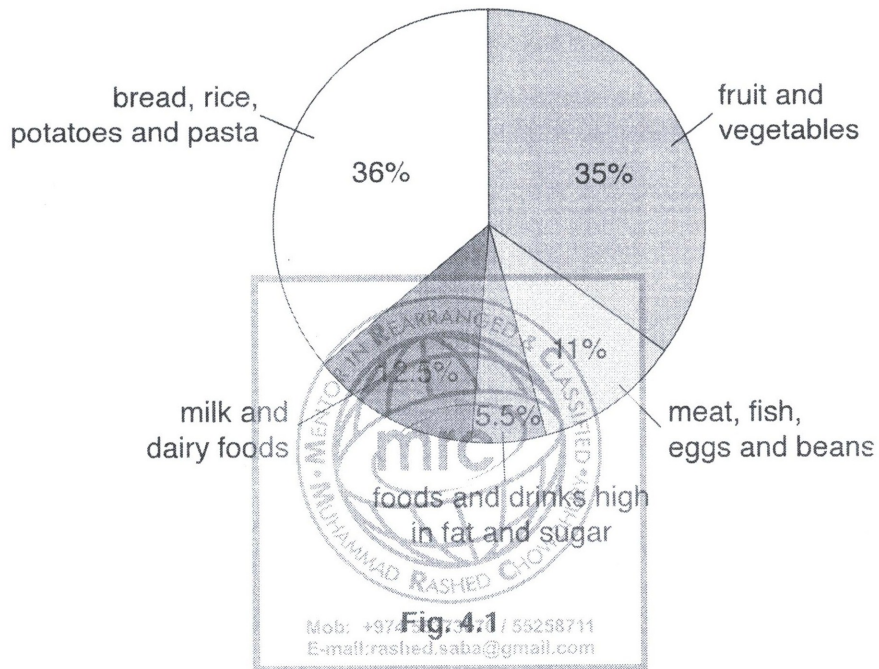
.....

.....

.....

..... [2]

(b) Fig. 4.1 shows a pie chart of a person's diet.



(i) Bread, rice, potatoes and pasta form 36% of this diet.

Explain why these foods are important to the body.

.....

.....

.....

.....

..... [2]

(ii) State the foods shown in Fig. 4.1 that are rich in protein **and** state why proteins are important to the body.

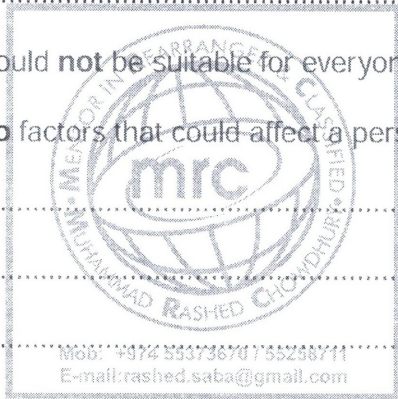
.....  
.....  
.....  
.....  
.....[2]

(iii) Only 5.5% of this diet is made up of food and drinks that are high in fat and sugar.  
Describe **one** harmful effect of eating too much fat.

.....  
.....  
.....[1]

(iv) The diet in Fig. 4.1 would **not** be suitable for everyone's needs.

State **and** explain **two** factors that could affect a person's dietary needs.

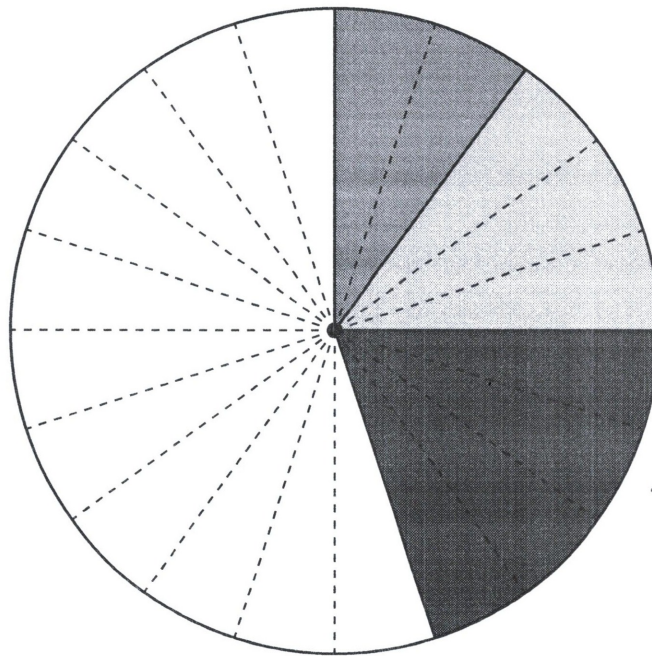


.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....[4]

[Total: 11]

7-V-2-5)

1 (a) Fig. 5.1 shows the proportion of different food groups in a diet.



carbohydrates      vitamins, minerals and fibre      fats      proteins

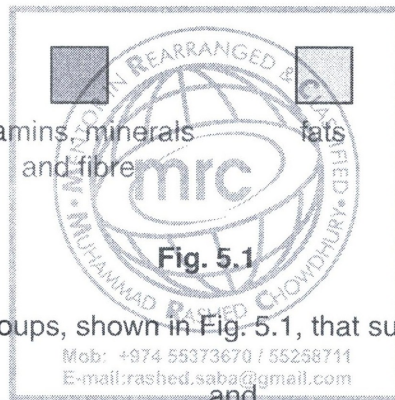


Fig. 5.1

(i) State the two food groups, shown in Fig. 5.1, that supply the most energy per kilogram.

..... and .....

[2]

This diet has a low proportion of iron and vitamin D.

(ii) Describe **one** effect of a shortage of iron in the human diet.

.....  
..... [1]

(iii) Describe **one** effect of a shortage of vitamin D in the human diet.

.....  
..... [1]



(b) Fig. 5.2 shows how much energy is required, each day, by different people.

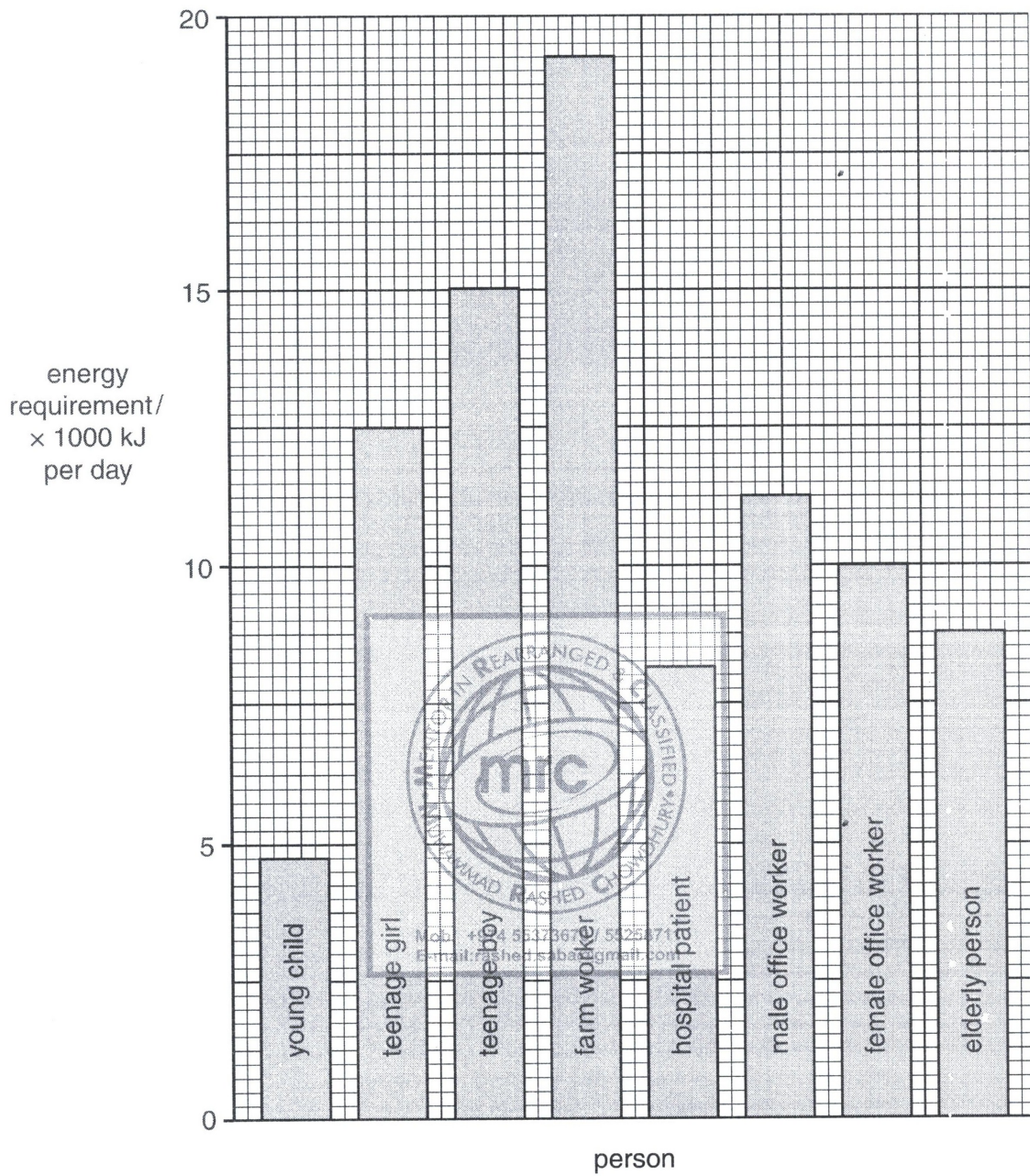


Fig. 5.2

(i) Use Fig. 5.2. to suggest **two** factors which affect the energy requirements of a person.

- 1 .....
- 2 .....

[2]

(ii) Explain why a female office worker with a daily intake of 15000kJ is likely to become overweight.

.....  
.....  
.....  
..... [2]

(c) In many parts of the world, rice forms an important part of the diet.

Rice contains a high proportion of starch.

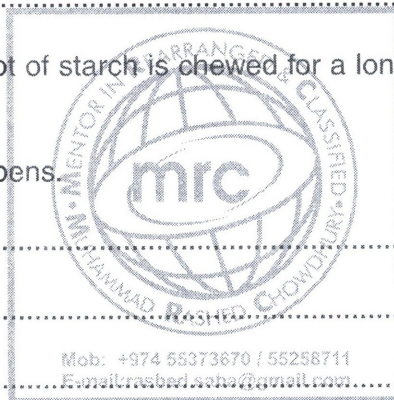
Egg, chicken or fish may be added to the rice.

(i) State why undigested starch cannot be used by the body.

.....  
..... [1]

(ii) If food containing a lot of starch is chewed for a long time, it may leave a sweet taste in the mouth.

Explain why this happens.



.....  
.....  
.....  
..... [2]

(iii) Suggest the benefit of adding egg, chicken or fish to the rice.

.....  
..... [1]

(iv) Rice is not the only food that contains a lot of starch.

Name **two** other foods that contain a lot of starch.

1 .....

2 .....

[2]

- (v) Rice is usually boiled, but it can also be cooked in fat.  
There may be harmful effects to the body of eating too much fatty food.

Describe **two** ways in which too much fat in the diet may be harmful to the body.

1 .....

.....

2 .....

.....

[2]

[Total: 16]

