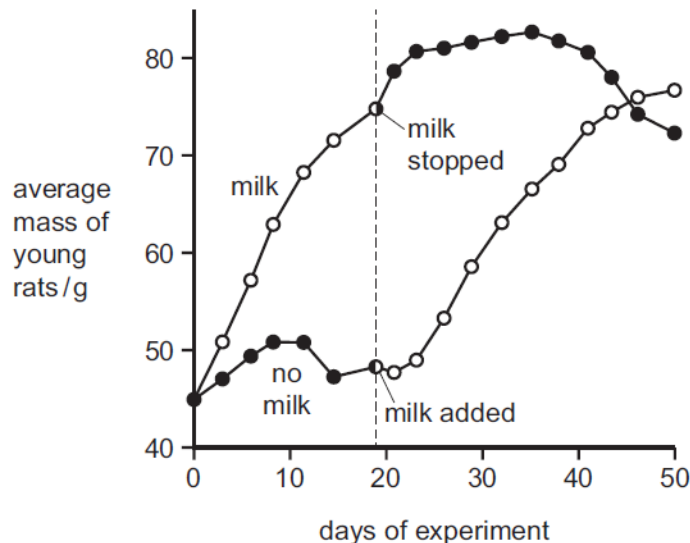


Human nutrition – 2021 O Level 5090**1. Nov/2021/Paper_11/No.8**

Milk contains water, carbohydrates, proteins, fats, and some minerals and vitamins.

The graph shows the results of an experiment. One group of young rats was given 3 cm³ of milk per day for 18 days. On day 18, the milk was stopped for this group but given to a second group of young rats. All other factors were kept constant for the two groups of rats.



What is the explanation for these results?

- A Whether or not young rats are given milk, their mass is always the same on day 46.
- B Milk contains the nutrients needed for young rats to grow.
- C Milk is not important for the growth of young rats.
- D Young rats grow fastest after day 18.

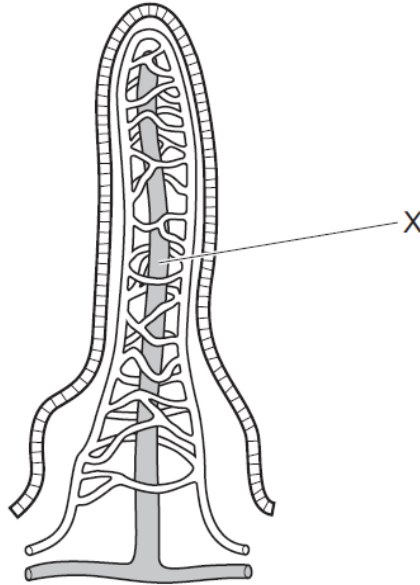
2. Nov/2021/Paper_11/No.9

Which statement about chemical digestion in the human alimentary canal is correct?

- A Digestion of carbohydrates is completed in the colon.
- B Enzymes are secreted to break down cellulose in the duodenum.
- C Protein digestion is completed in the ileum.
- D The stomach secretes enzymes to break down starch.

3. Nov/2021/Paper_11/No.10

The diagram shows a section through a villus.



Which products of digestion are mainly absorbed by vessel X?

- A amino acids and glucose
 - B glucose and fatty acids
 - C fatty acids and glycerol
 - D glycerol and amino acids
- 4. Nov/2021/Paper_12/No.9**
- Which statement about chemical digestion in the human alimentary canal is correct?
- A Digestion of carbohydrates is completed in the colon.
 - B Enzymes are secreted to break down cellulose in the duodenum.
 - C Protein digestion is completed in the ileum.
 - D The stomach secretes enzymes to break down starch.
- 5. Nov/2021/Paper_12/No.10**
- Which two nutrients can lead to deformed bones if there is a deficiency of either of them in the diet?
- A calcium and iron
 - B calcium and vitamin D
 - C iron and vitamin C
 - D vitamin C and vitamin D

6. Nov/2021/Paper_22/No.3

The table shows the mass of each component in 250 cm³ of cow's milk.

component	mass / g
carbohydrate	11
fat	8
protein	8

- (a) (i) A 250 cm³ drink of cow's milk provides 14% of the total mass of protein required each day in the diet of an average adult human.

Calculate the total mass of protein required in the diet of an average adult human each day.

You **must** state your answer to one decimal place and include correct units.

..... [3]

- (ii) State **two** important uses of protein in the diet.

1

2

[2]

(b) The table below lists four components of a balanced diet for an average adult human.

For each component listed, the percentage of the daily requirement provided by 250 cm³ of milk is shown.

component	percentage of daily requirement provided by 250 cm ³ of milk
vitamin C	0
vitamin D	30
calcium	30
iron	0

Discuss how a 250 cm³ drink of cow's milk contributes to the health of an adult human for each of the components listed in the table.

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..... [4]

[Total: 9]

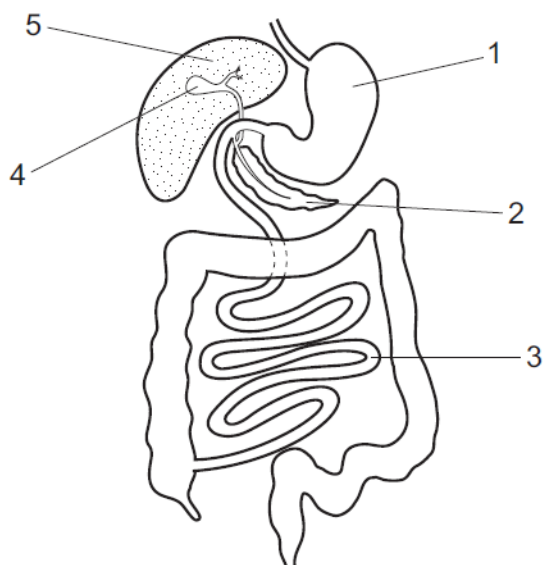
7. Jun/2021/Paper_11/No.8

Which statement about diets is correct?

- A A diet providing all the needs of an average man aged 70 can lead to malnutrition in an active boy aged 14.
- B Malnutrition can only occur if the body receives less of a nutrient than it requires.
- C Protein requirements in the diet increase throughout a person's life.
- D Very young children require a greater total energy intake than active adults.

8. Jun/2021/Paper_11/No.9

The diagram shows part of the human alimentary canal and associated organs.



Which row describes the functions of parts shown in the diagram?

	structure	function	structure	function
A	1	digestion of protein	3	absorption of the products of digestion
B	2	emulsifying fats	3	absorption of amino acids and glucose
C	4	production of bile	5	making digestive enzymes
D	4	storing digestive enzymes	2	making digestive enzymes

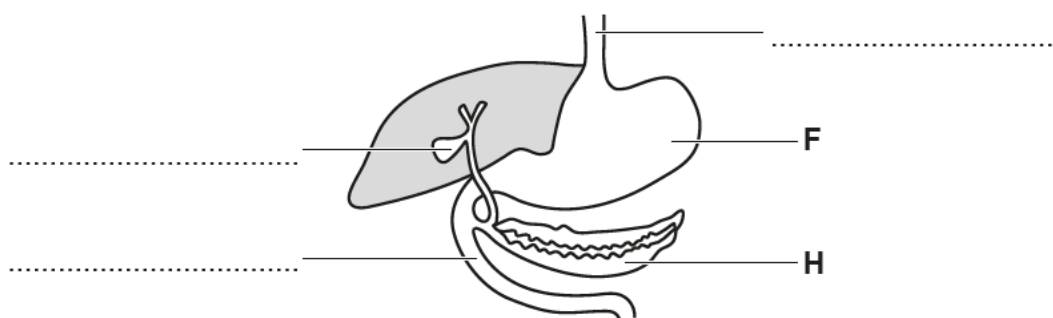
9. Jun/2021/Paper_11/No.10

What is **not** an example of assimilation?

- A synthesis of glycogen from glucose
- B synthesis of fats from fatty acids and glycerol
- C synthesis of glucose from starch
- D synthesis of proteins from amino acids

10. Jun/2021/Paper_21/No.4

The diagram shows part of the human alimentary canal and its associated organs.



(a) Complete the three labels on the diagram by naming the structures. [3]

(b) Describe the functions of the structure labelled F.

.....

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.....

..... [3]

(c) Name structure H and describe its role in homeostasis.

name

role.....

.....

..... [2]

[Total: 8]

11. Jun/2021/Paper_21/No.6

(a) Yoghurt is a milk product.

Outline the role of microorganisms in the process of yoghurt production.

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..... [5]

(b) The diagram shows a food label from a pot of yoghurt.

contents	nutritional values in 100 g of yoghurt
energy	344 kJ
fat	4.5 g
total carbohydrates	5.5 g
sugar	5.5 g
fibre	0.0 g
protein	4.2 g
salt	0.1 g
calcium	0.125 g
water	81%

Yoghurt can contribute to a balanced diet but adult humans cannot survive by eating only yoghurt.

Explain this statement using the information on the label.

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..... [5]

[Total: 10]

12. Jun/2021/Paper_21/No.7

(a) Excess amino acids are broken down in liver cells to form molecules of urea.

Describe the pathway taken by a molecule of urea, from the liver of a mammal until it reaches the soil.

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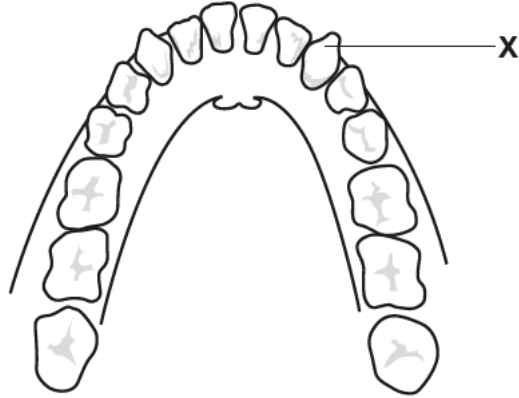
(b) Urea is a molecule which contains nitrogen.
Suggest why it is important that molecules that contain nitrogen are added to the soil.

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..... [3]

[Total: 10]

13. Jun/2021/Paper_22/No.1

The diagram shows the teeth in the lower jaw of a human.



(a) Name the type of tooth labelled **X** and describe **one** function of this type of tooth.

type of tooth

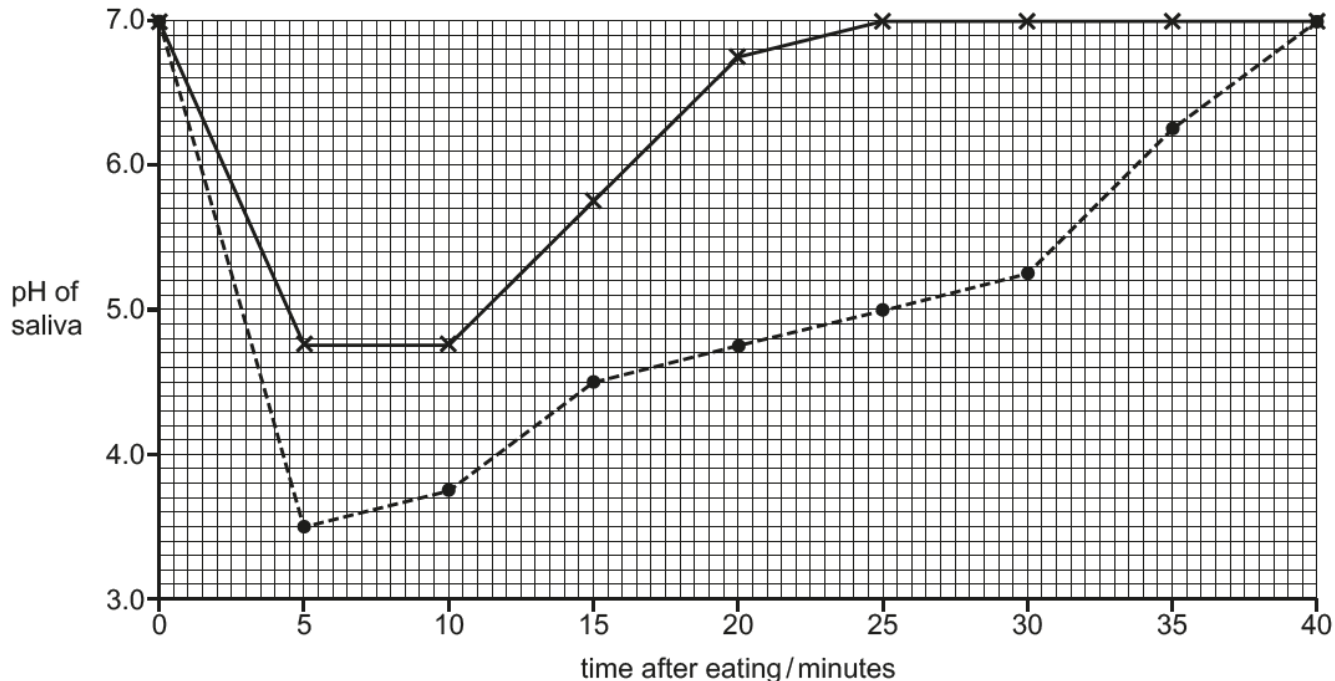
function

.....

[2]

(b) Food can be sweetened using honey or sugar.

The graph shows how the pH of saliva in the mouth changes with time after eating food sweetened with honey or sugar.



key
 ——— honey
 - - - - - sugar

(i) State the lowest pH of saliva in the mouth after eating food sweetened with honey.

..... [1]

(ii) It takes more time for saliva to return to pH 7.0 after eating food sweetened with sugar than after eating food sweetened with honey.

State how much more time it takes for the pH to return to 7.0.

..... [2]

(c) Dental decay is likely to occur when the pH of saliva falls below 5.5.

(i) Use information from the graph to explain whether sweetening food with honey or with sugar is more likely to lead to dental decay.

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..... [2]

(ii) State **two** ways to prevent dental decay.

1

2 [2]

(iii) A person with dental decay may also have gums that bleed. This makes it more likely that bacteria found in the mouth will enter the circulatory system.

Bacteria in the circulatory system can cause the blood to clot.

Small blood clots may move through the circulatory system to the coronary arteries.

Suggest and explain possible health problems that this may cause.

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..... [4]

[Total: 13]

