

IGCSE

BIOLOGY

(Syllabus 0610)

Paper 2, MCQ (Extended)

All Variants (Topical)

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 period	2020 to 2024
 contents	June & November, Paper 2 (P21, P22 & P23) With Answers.
 form	Topic By Topic
 compiled for	IGCSE

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Topic 1	Characteristics and Classification of Living Organisms
Topic 2	Organisation of the Organism
Topic 3	Movement Into and Out of Cells
Topic 4	Biological Molecules
Topic 5	Enzymes
Topic 6	Plant Nutrition
Topic 7	Human Nutrition
Topic 8	Transport in Plants
Topic 9	Transport in Animals
Topic 10	Diseases and Immunity
Topic 11	Gas Exchange in Humans
Topic 12	Respiration
Topic 13	Excretion in Humans
Topic 14	Coordination and Response
Topic 15	Drugs
Topic 16	Reproduction
	16.1 Reproduction in Plants
	16.2 Reproduction in Humans
Topic 17	Inheritance
Topic 18	Variation and Selection
Topic 19	Organisms and their Environment
Topic 20	Human Influences on Ecosystems
Topic 21	Biotechnology and Genetic Modification

TOPIC 1

Characteristics & Classification of Living Organisms

1. The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

- A** excretion **B** nutrition **C** respiration **D** sensitivity

[June 2020/P21/P22/P23/Q1]

2. A rat has the scientific name *Rattus rattus*.
What do the two parts of this name refer to?

- A** genus and species **B** kingdom and genus
C kingdom and species **D** variety and genus

[June 2020/P21/P22/P23/Q2]

3. Hedgehogs are mammals. Touching a hedgehog causes it to roll into a ball to protect itself.
Which characteristics is it displaying?

- A** excretion and movement **B** growth and sensitivity
C movement and growth **D** movement and sensitivity

[Nov 2020/P21/Q1]

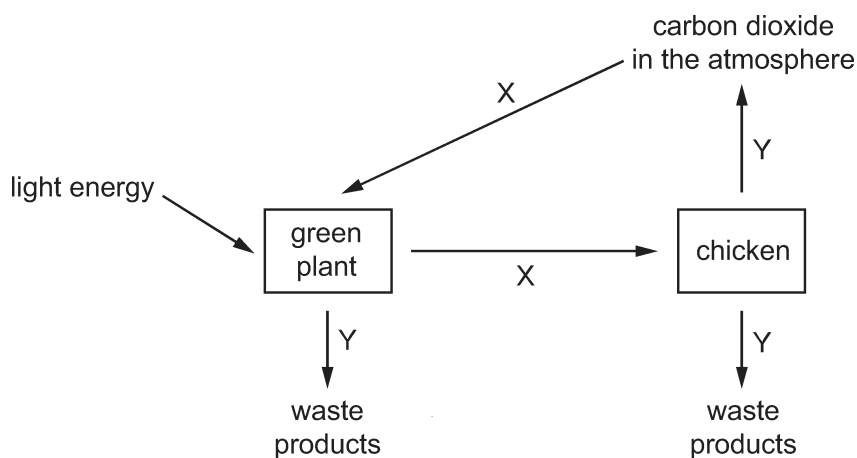
4. What are features of the leaves of a plant that is a dicotyledon?

	broad leaves	parallel veins
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key
✓ = yes
✗ = no

[Nov 2020/P21/P22/P23/Q2]

5. The diagram shows some of the processes carried out by living organisms.



Which two characteristics of living organisms are represented by arrows X and Y?

- A** excretion and sensitivity **B** nutrition and excretion
C respiration and growth **D** sensitivity and reproduction

[Nov 2020/P23/Q1]

6. The table shows a section of DNA taken from four different organisms.

organism	base sequence									
W	C	A	C	A	A	T	C	G	A	A
X	G	T	C	A	A	T	G	G	T	G
Y	C	T	C	A	A	T	C	G	T	A
Z	C	T	C	A	T	T	C	G	T	A

Which two organisms are the most distantly related to each other?

- A** W and X **B** W and Z **C** X and Y **D** X and Z

[June 2021/P21/Q2]

7. The bonobo and the chimpanzee are two closely related species.

What is the **most** accurate method of deciding how closely related species are?

- A** compare evolutionary relationships of other species
B compare the base sequences of their DNA
C compare their anatomy
D compare their morphology

[June 2021/P22/Q2]

8. What is a characteristic of all living organisms?

- A** breathing **B** circulation
C egestion **D** sensitivity

[June 2021/P21/P22/P23/Q1]

9. What is the most accurate method of classifying animals?

- A comparing bones
- B comparing the morphology of organisms
- C identifying similarities in anatomy
- D identifying similarities in DNA base sequences

[June 2021/P23/Q2]

10. Scientists discover a new species of animal.

It has a segmented body with two pairs of legs on each segment.

To which group of animals does this new species belong?

- | | |
|-------------|---------------|
| A arachnids | B crustaceans |
| C insects | D myriapods |

[June 2021/P21/P22/P23/Q3]

11. Which characteristics of all living organisms are needed to release energy for growth?

- | | |
|-----------------------------|-----------------------------|
| A breathing and respiration | B excretion and nutrition |
| C excretion and respiration | D nutrition and respiration |

[Nov 2021/P21/Q1]

12. All living things can remove toxic materials and other substances that are in excess of requirements.

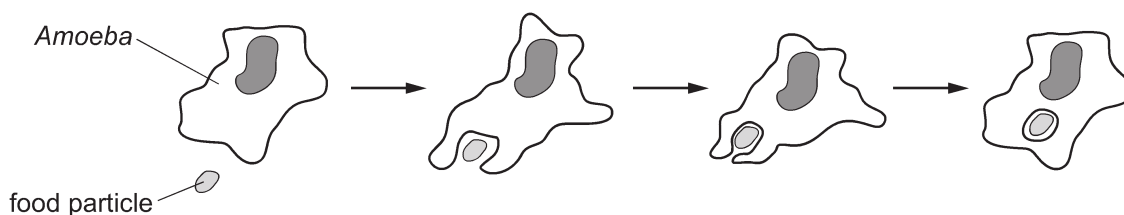
What is this process called?

- | | | | |
|------------|-------------|-------------|---------------|
| A egestion | B excretion | C nutrition | D respiration |
|------------|-------------|-------------|---------------|

[Nov 2021/P22/Q1]

13. An *Amoeba* is a single-celled organism.

The diagram shows an *Amoeba* engulfing a food particle.



Which characteristics of living organisms are shown?

- A excretion, movement and nutrition
- B excretion, nutrition and sensitivity
- C movement, nutrition and sensitivity
- D movement, reproduction and sensitivity

[Nov 2021/P23/Q1]

14. Two animals have an identical sequence of amino acids in one of the proteins found in their cells.

What does this indicate about these animals?

- A They have been eating the same types of food.
- B They have not been exposed to substances that cause mutation.
- C They must be members of the same genus.
- D They share an ancestor.

[Nov 2021/P21/P22/P23/Q2]

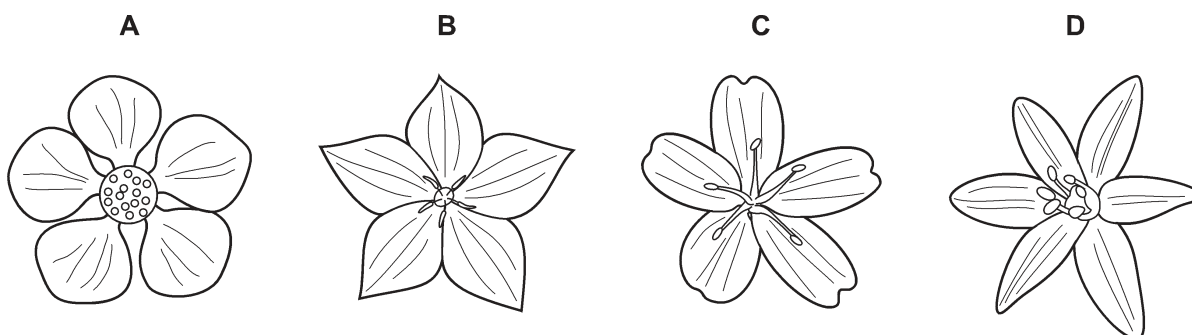
15. All living organisms release energy from nutrient molecules within their cells.

What is the name of this characteristic?

- A growth
- B nutrition
- C respiration
- D sensitivity

[June 2022/P21/P22/P23/Q1]

16. Which diagram shows a flower from a monocotyledon?



[June 2022/P21/P22/P23/Q2]

17. Which process provides an organism with the raw materials needed for tissue repair?

- A excretion
- B growth
- C nutrition
- D respiration

[Nov 2022/P21/P22/P23/Q1]

18. Which name is given to a group of individuals that can reproduce to produce fertile offspring?

- A a genus
- B a kingdom
- C a species
- D an organ system

[Nov 2022/P21/P22/P23/Q2]

19. What are characteristics of all organisms?

- A egestion and excretion
- B egestion and nutrition
- C excretion and nutrition
- D excretion and photosynthesis

[June 2023/P21/Q1]

20. The scientific name for the golden eagle is *Aquila chrysaetos*.

What is the genus of the golden eagle?

- A *Aquila* B *chrysaetos* C eagle D golden

[June 2023/P21/Q2]

21. Which process occurs both in plants and in animals?

- A excretion B phagocytosis C photosynthesis D transpiration

[June 2023/P22/Q1]

22. Some statements about species are given.

- 1 Members of a species all look identical.
- 2 Members of a species belong to the same genus.
- 3 Members of a species can produce fertile offspring.
- 4 Species are named using an international system.

Which statements are correct?

- A 1, 2, 3 and 4 B 1, 2 and 3 only
C 2 and 4 only D 2, 3 and 4 only

[June 2023/P22/Q2]

23. What are two characteristics of all living organisms?

- A breathing and reproduction B photosynthesis and excretion
C reproduction and respiration D respiration and photosynthesis

[June 2023/P23/Q1]

24. Some processes carried out by living organisms are listed.

- 1 egestion
- 2 excretion
- 3 reproduction
- 4 respiration

Which processes are carried out by **all** living organisms?

- A 1, 2, 3 and 4 B 1, 2 and 3 only
C 2, 3 and 4 only D 3 and 4 only

[Nov 2023/P21/Q1]

25. The scientific name for humans is *Homo sapiens*.

What does *Homo* refer to?

- A mammal B genus C kingdom D species

[Nov 2023/P21/Q2]

26. Which processes are characteristics of **all** living organisms?

- 1 digestion
- 2 respiration
- 3 excretion

A 1, 2 and 3 **B** 1 only **C** 2 and 3 only **D** 2 only

[Nov 2023/P22/Q1]

27. Using the binomial system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

	<i>Vulpes</i>	<i>lagopus</i>
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

[Nov 2023/P22/Q2]

28. Which feature is found in viruses?

A cell wall **B** mitochondria **C** nucleus **D** protein coat

[Nov 2023/P22/Q3]

29. What are characteristics of all living organisms?

- A** breathing, growth and movement
- B** egestion, nutrition and reproduction
- C** digestion, excretion and respiration
- D** reproduction, respiration and sensitivity

[Nov 2023/P23/Q1]

30. Using the binomial system, the name of a lion is *Panthera leo*.

Which statement is correct?

- A** The lion belongs to the kingdom *Panthera*.
- B** The lion belongs to the genus *Panthera*.
- C** The lion belongs to the species *Panthera*.
- D** The lion belongs to the genus *leo*.

[Nov 2023/P23/Q2]

31. A person touches a hot object and rapidly moves their hand away from the hot object.

Which characteristic of living organisms is this an example of?

A excretion **B** growth **C** reproduction **D** sensitivity

[June 2024/P21/Q1]

TOPIC 1

Answer Keys

1. D	2. A	3. D	4. B	5. B	6. A
7. B	8. D	9. D	10. D	11. D	12. B
13. C	14. D	15. C	16. D	17. C	18. C
19. C	20. A	21. A	22. D	23. C	24. C
25. B	26. C	27. B	28. D	29. D	30. B
31. D	32. B	33. A	34. A	35. B	36. C
37. C	38. C	39. B	40. A	41. A	42. B
43. D	44. D				

TOPIC 7

Human Nutrition

Diet, Digestive system, Physical & Chemical digestion, Absorption

1. The activity of amylase is measured in four parts of the alimentary canal.
Which two parts have the most amylase activity?

- A** colon and duodenum **B** colon and stomach
C mouth and duodenum **D** stomach and mouth

[June 2020/P21/Q13]

2. Biological washing powder can be used to remove stains on clothing.
Which enzymes will remove stains caused by starch, fat and protein?

	amylase	lipase	trypsin
A	✓	✗	✗
B	✓	✓	✓
C	✗	✗	✓
D	✗	✓	✓

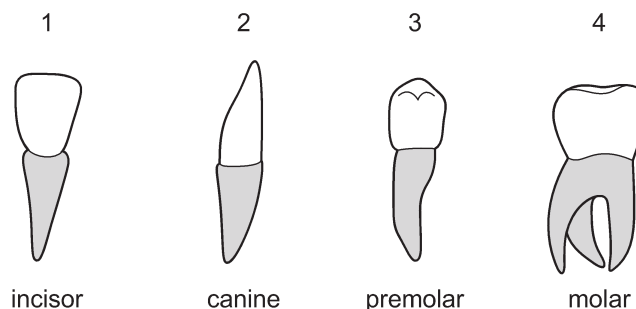
key

✓ = removes stain

✗ = does not remove stain

[June 2020/P21/Q14]

3. The diagram shows the four types of human tooth.



Which teeth are used for grinding food?

- A** 1 and 2 **B** 2 and 3 **C** 3 and 4 **D** 4 and 1

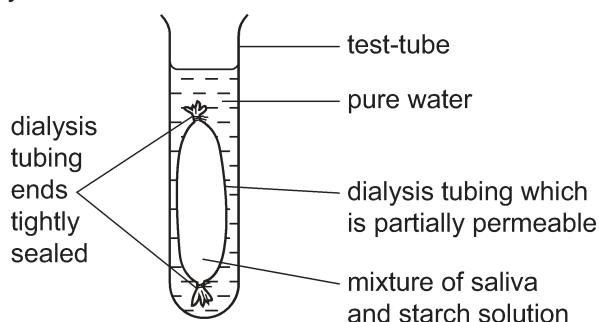
[June 2020/P22/Q9]

4. What is the definition of chemical digestion?

- A** Large insoluble molecules are changed into smaller soluble molecules.
B Large soluble molecules are changed into smaller soluble molecules.
C Small insoluble molecules and ions are passed through the wall of the small intestine.
D Small soluble molecules and ions are passed through the wall of the small intestine.

[Nov 2020/P21/Q14]

5. The diagram shows the apparatus used in an experiment to demonstrate two processes that take place in the body.



After one hour, the water outside the dialysis tubing contained reducing sugars.

Which two processes are represented by this experiment?

- A** absorption and digestion **B** absorption and egestion
C digestion and egestion **D** digestion and ingestion

[Nov 2020/P22/Q14]

6. Which stage of nutrition takes place when food molecules become part of a body cell?

- A** absorption **B** assimilation **C** digestion **D** ingestion

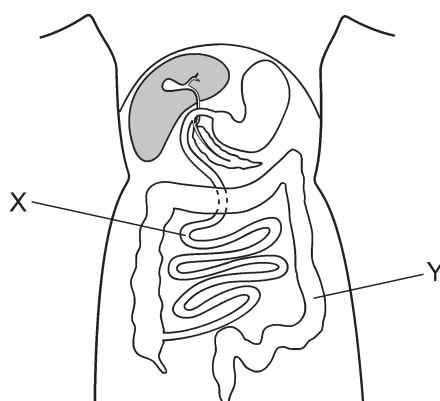
[Nov 2020/P21/P22/P23/Q13]

7. What are the products when proteins are broken down?

- A** amino acids **B** fatty acids **C** glycerol **D** simple sugars

[June 2021/P21/Q16]

8. The diagram shows part of the human body.



Which statement about organs X and Y is correct?

- A** X absorbs more water from food than Y.
B X does not absorb water from food.
C Y absorbs more water from food than X.
D Y does not absorb water from food.

[June 2021/P22/Q16]

9. What is the cause of the **start** of dental decay?

- A** Acid dissolves dentine. **B** Acid dissolves enamel.
C Sugars dissolve dentine. **D** Sugars dissolve enamel.

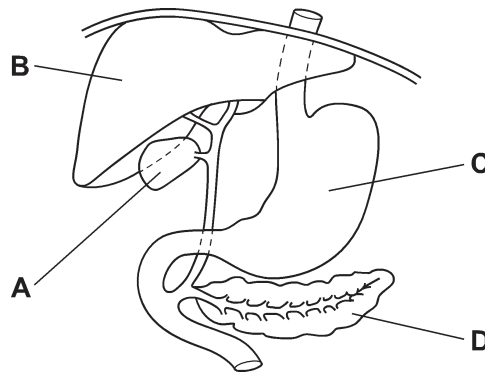
[June 2021/P23/Q16]

10. Which food is the best source of vitamin C?

- A** bread **B** meat **C** milk **D** oranges

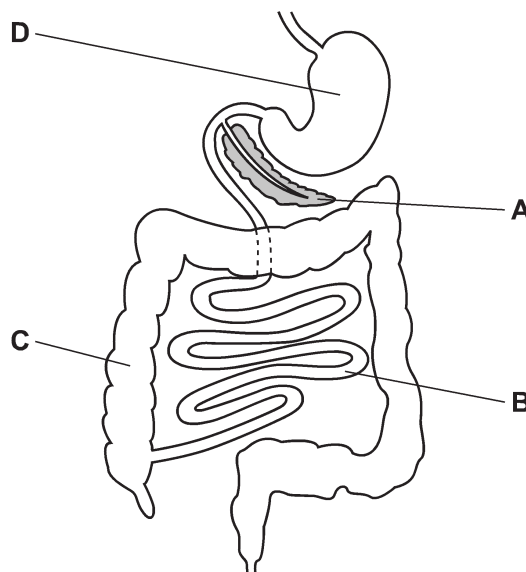
[Nov 2021/P21/Q13]

11. The diagram shows part of the human alimentary canal and associated organs.
Which structure produces hydrochloric acid?



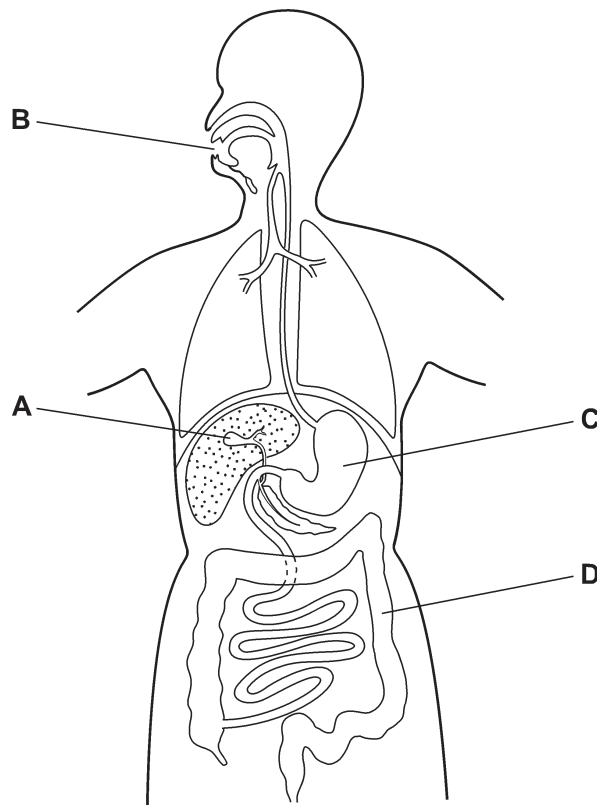
[Nov 2021/P21/Q14]

12. The diagram shows part of the alimentary canal and associated organs.
Where does most water absorption take place?



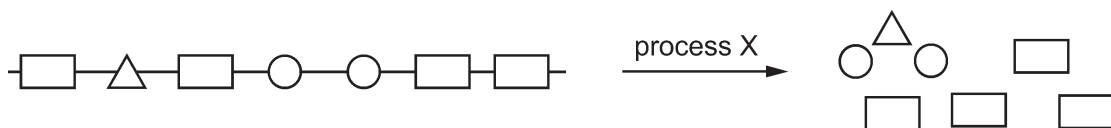
[Nov 2021/P22/Q14]

13. Which part of the alimentary canal produces an enzyme that digests proteins?



[Nov 2021/P23/Q14]

14. The diagram shows a large food molecule changing into smaller molecules.



What is process X?

- A** absorption **B** chewing **C** digestion **D** secretion

[Nov 2021/P21/P22/P23/Q15]

15. What is the dietary importance of fibre in humans?

- A** for growth and repair of cells
B to help food move through the alimentary canal
C to maintain strong bones and teeth
D to provide energy

[June 2022/P21/Q13]

16. In which part of the alimentary canal does ingestion take place?

- A** anus **B** liver **C** mouth **D** stomach

[June 2022/P21/Q14]

17. The table shows some different components in a balanced diet.
- Which row correctly matches the components to the reasons why they are needed?

	vitamin D	water	fats
A	insulation	bone growth	to make haemoglobin
B	bone growth	transport	insulation
C	transport	to make haemoglobin	bone growth
D	to make haemoglobin	insulation	transport

[June 2022/P22/Q13]

- 18.** Which process involves the removal of material from the rectum?

- A** egestion
B ingestion
C chemical digestion
D mechanical digestion

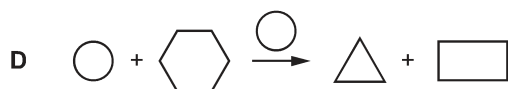
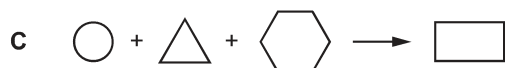
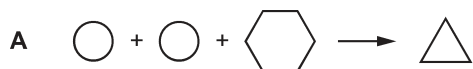
[June 2022/P22/Q14]

- 19.** Which nutrient is required to prevent scurvy?

- A** calcium **B** iron **C** vitamin C **D** vitamin D

[June 2022/P23/Q13]

- 20.** Which diagram represents the action of lipase?



key

enzyme

○ substance 1

substance 2

☐ substance 3

[June 2022/P23/Q14]

21. The cholera bacterium produces toxins that cause chloride ions to be secreted into the small intestine.

What is the immediate effect of this on the water potential of blood in the intestinal capillaries, and on the water potential of the contents of the small intestine?

	water potential	
	blood in capillaries	contents of small intestine
A	lowered	lowered
B	lowered	raised
C	raised	lowered
D	raised	raised

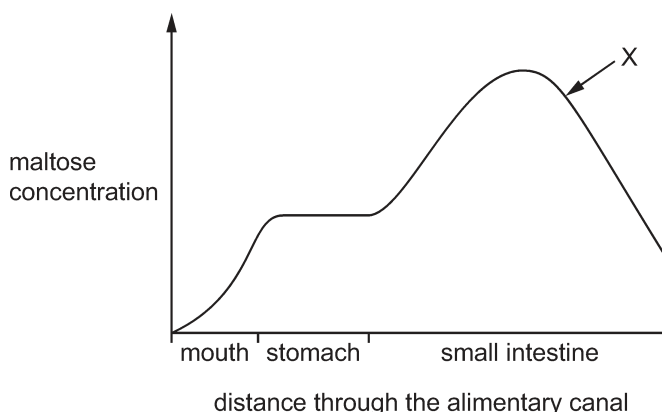
[Nov 2022/P21/P22/P23/Q13]

22. The graph shows the concentration of maltose in different parts of the alimentary canal.

What causes the change in concentration at X?

- A absorption of maltose
- B action of amylase
- C action of maltase
- D assimilation of maltose

[Nov 2022/P21/P22/P23/Q14]



23. The table shows the recommended daily amounts (RDA) of some nutrients for a person with special dietary requirements, and their actual intake of those nutrients.

dietary component	RDA for this person	actual intake
carbohydrate / g	260	265
protein / g	44	41
fat / g	33	32
vitamin C / mg	60	5
vitamin D / μg	10	11
fibre / g	26	27
iron / mg	15	15
calcium / mg	700	710

What would the person be at risk of developing if they continued with the same daily intake of these nutrients?

- A constipation
- B coronary heart disease
- C obesity
- D scurvy

[Nov 2022/P23/Q27]

24. The haemoglobin concentration in the blood of a person is 80 g / dm^3 . The accepted normal concentration is 120 g / dm^3 or above.

Which substance may be lacking in their diet?

- A calcium
- B fats
- C fibre
- D iron

[June 2023/P21/Q13]

25. Which statement about physical digestion is correct?

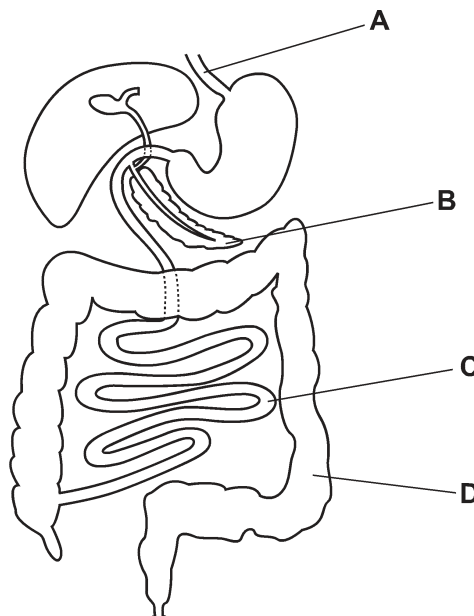
- A It increases the surface area of food.
- B It involves enzymes.
- C It takes place in the mouth only.
- D It produces smaller molecules.

[June 2023/P21/Q14]

26. The cholera bacterium toxin causes dehydration and loss of salts from the blood in humans. Which statement explains the reason for this?
- A Chloride ions are secreted into the small intestine where they increase the water potential.
 - B Chloride ions are secreted into the small intestine which causes water to move into the intestine by osmosis.
 - C Chloride ions are secreted into the small intestine which causes water to move out of the intestine by osmosis.
 - D Chloride ions are secreted into the small intestine which causes the water potential of the blood to decrease.

[June 2023/P21/Q19]

27. The diagram shows the human alimentary canal. In which structure is most glucose absorbed into the blood?



[June 2023/P22/Q7]

28. In which region of the alimentary canal is maltose digested?

A colon B rectum C small intestine D stomach

[June 2023/P22/Q9]

29. The lack of which component of a balanced diet will lead to the development of scurvy?

A calcium B iron C vitamin C D vitamin D

[June 2023/P22/Q13]

TOPIC 7

Answer Keys

1. C	2. B	3. C	4. A	5. A	6. B
7. A	8. A	9. B	10. D	11. C	12. B
13. C	14. C	15. B	16. C	17. B	18. A
19. C	20. B	21. C	22. C	23. D	24. D
25. A	26. B	27. C	28. C	29. C	30. C
31. A	32. B	33. D	34. D	35. A	36. A
37. A	38. B	39. D	40. B	41. A	42. B
43. C	44. B	45. B	46. D	47. B	48. A
49. D	50. B	51. D	52. D	53. C	54. D
55. C	56. D	57. D	58. C	59. A	60. C
61. B	62. C	63. D	64. C	65. C	