

NAMIBIA SENIOR SECONDARY CERTIFICATE

BIOLOGY ORDINARY LEVEL

6116/1

PAPER 1 Multiple Choice

45 minutes

Marks 40

2021

Additional Materials: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Write in soft pencil.
- Answer **all** questions.
- Make sure that you receive the multiple choice answer sheet with your **Candidate Number** on it.
- There are **forty** questions on this paper.
- For each question, there are four possible answers **A, B, C** and **D**. Choose the one you consider correct and record your choice in soft pencil on the separate answer sheet.
- If you want to change an answer, thoroughly erase the one you wish to delete.

Read the instructions on the answer sheet carefully.

- Each correct answer will score one mark.
- All questions in this paper carry equal marks.
- Any rough working should be done in this booklet.
- You may use a non-programmable calculator.

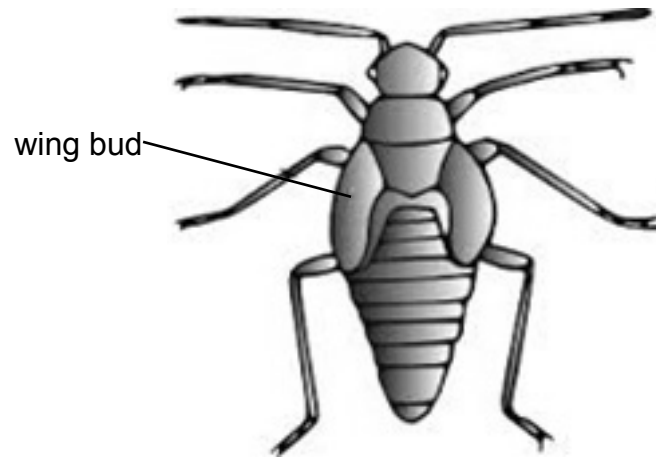
This document consists of **13** printed pages and **3** blank pages.



Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

- 1 The diagram shows an insect.



Use the dichotomous key to identify the insect.

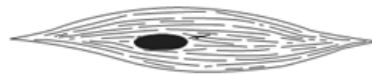
- | | | |
|---|----------------------------|----------|
| 1 | wings on wing buds | A |
| | no wings on wing buds..... | 2 |
| 2 | hairy legs | B |
| | smooth legs | 3 |
| 3 | three pairs of legs | C |
| | six pairs of legs | D |

- 2 The diagram shows different cell types.

Which cell type contracts to bring about movement?



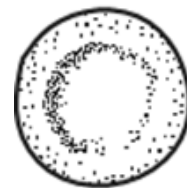
A



B

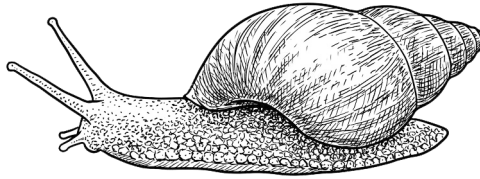


C



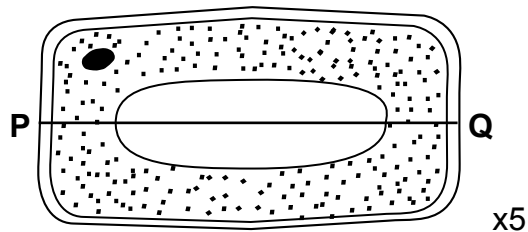
D

- 3 The diagram shows a snail.



Which group of invertebrates does the snail belong to?

- A annelida
 - B arachnida
 - C chordata
 - D mollusca
- 4 The diagram shows a magnified cell.

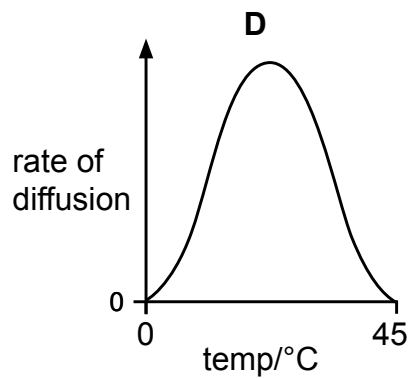
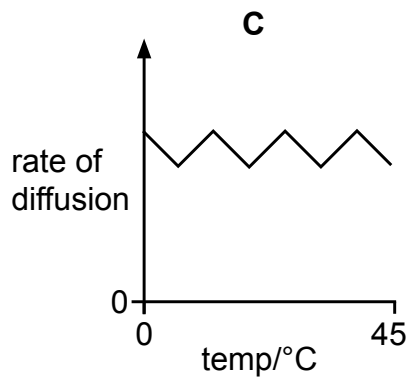
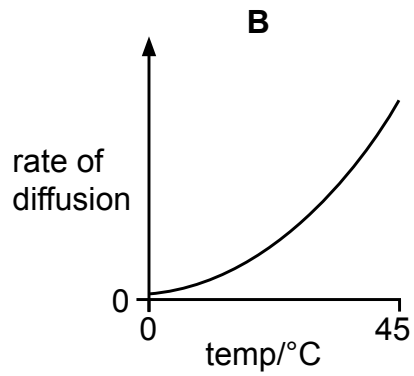
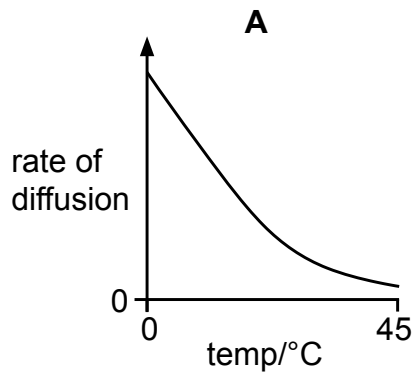


The line **P - Q** measures 33 mm

Which of the following will be used to calculate the actual length of the line **P - Q**?

- A $33 \text{ mm} \div 5$
- B $33 \text{ mm} \times 5$
- C $33 \text{ mm} + 5$
- D $33 \text{ mm} - 5$

5 Which graph shows the effect of increasing temperature on the rate of diffusion?



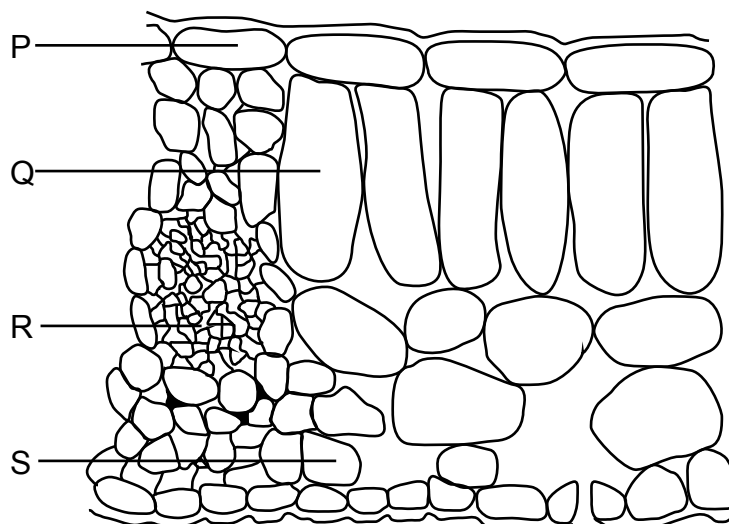
6 Which row correctly links a large molecule with its basic units?

	large molecule	basic units
A	fat	amino acids
B	glycogen	glucose
C	protein	fatty acids
D	starch	glycerol

7 Which proteins act as biological catalysts?

- A** antibodies
- B** enzymes
- C** haemoglobin
- D** hormones

- 8 The diagram shows a cross section of a dicotyledonous leaf.



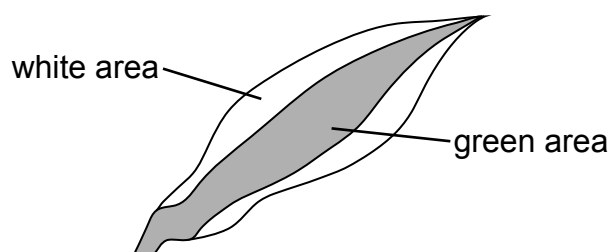
Which letters identify an epidermal cell and mesophyll cell?

	epidermal	mesophyll
A	P	R
B	P	S
C	Q	R
D	Q	S

- 9 Which mineral ions are needed to make amino acids?

- A** iron
- B** magnesium
- C** nitrate
- D** phosphate

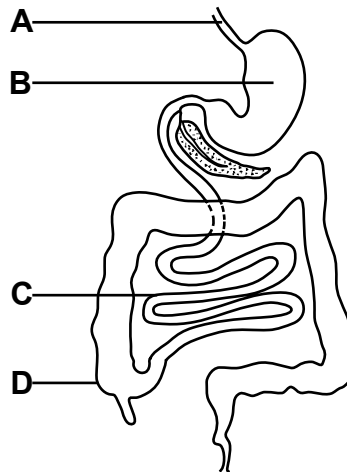
- 10 The diagram shows a variegated leaf in a photosynthesis experiment. The leaf is left in the light for several hours, then the different areas are tested with iodine solution for the presence of starch.



Which substance needed for photosynthesis is being investigated in this experiment?

- A** carbon dioxide
- B** chlorophyll
- C** oxygen
- D** light

- 11 Which deficiency disease may occur due to lack of vitamin C in a human diet?
- A anaemia
 - B kwashiorkor
 - C rickets
 - D scurvy
- 12 Which term is defined as the taking in of substances into the body through the mouth?
- A absorption
 - B assimilation
 - C egestion
 - D ingestion
- 13 The diagram shows parts of the alimentary canal.



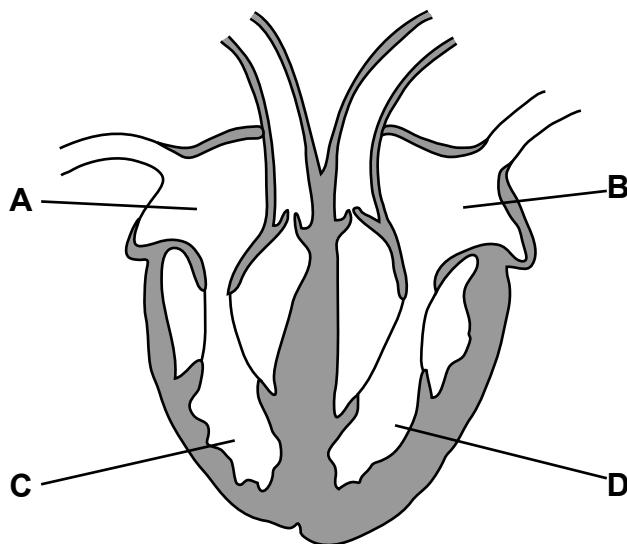
In which part is chemical digestion finalised?

- 14 Which part of the villus absorbs fatty acids and glycerol?
- A arteriole
 - B capillary
 - C epithelial tissue
 - D lacteal
- 15 Which environmental factor increases the rate of transpiration?
- A low humidity
 - B low light intensity
 - C low temperature
 - D low wind speed

16 Which plant tissue transports systemic pesticides?

- A** companion cells
- B** root hair cells
- C** phloem tubes
- D** xylem vessels

17 The diagram shows a human heart.

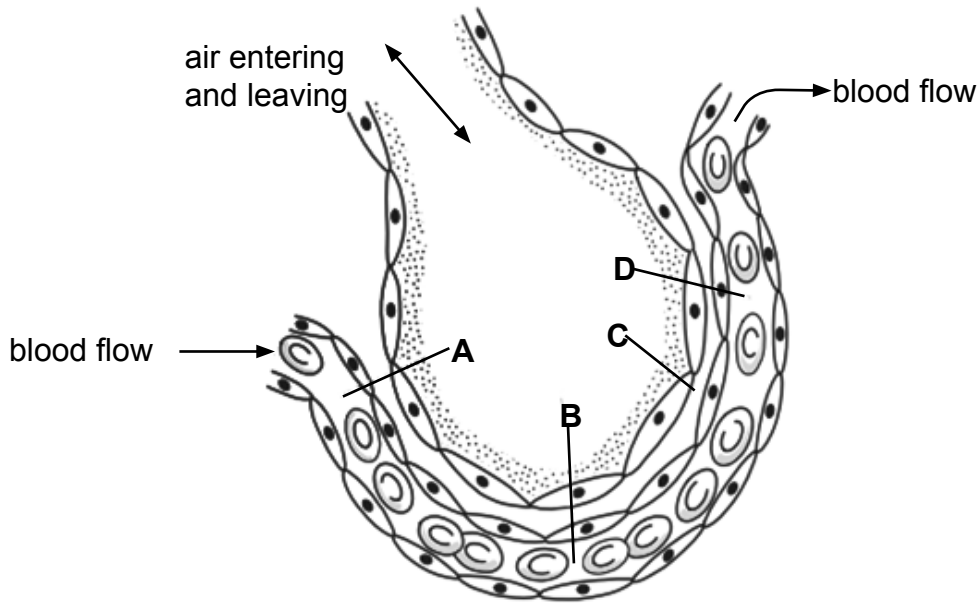


Which chamber pumps blood with the highest pressure?

18 Which is true for arteries when compared to veins?

- A** they have thicker elastic walls
- B** they have thinner elastic walls
- C** they have valves
- D** they have wider lumens

19 The diagram shows part of the gaseous exchange surface in humans.

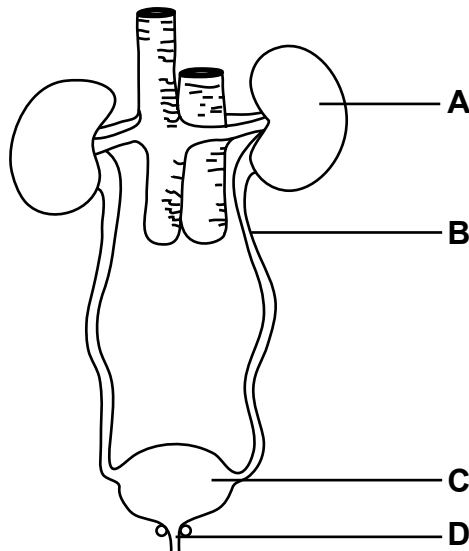


At which point will the concentration of carbon dioxide be at its highest value?

20 What is produced by muscles during anaerobic respiration?

- A** alcohol only
- B** alcohol and carbon dioxide
- C** lactic acid only
- D** lactic acid and carbon dioxide

21 The diagram shows part of the excretory system.



Which labelled structure is the bladder?

22 Why is glucose added to dialysis fluid in a kidney machine?

- A** to provide blood with glucose
- B** to ensure glucose is not lost from the blood
- C** to maintain a steep diffusion gradient
- D** to allow urea and salts to diffuse out of the blood

23 In a simple reflex arc, sensory, relay and motor are all types of...

- A** effectors
- B** impulses
- C** neurones
- D** receptors

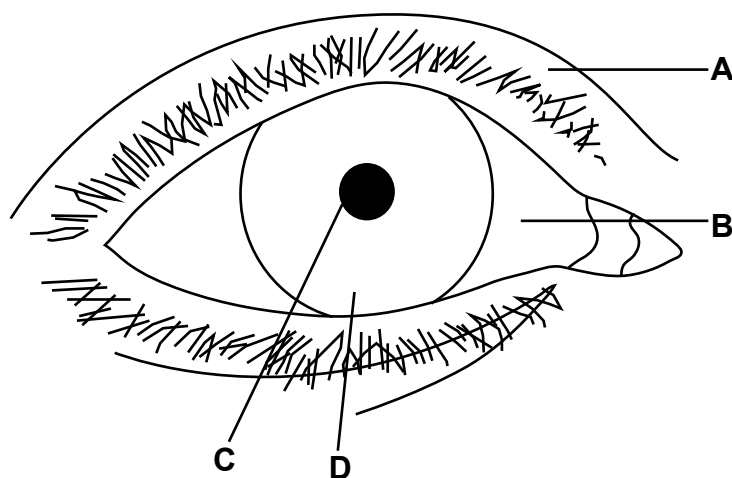
24 Which hormone is produced by the testes?

- A** adrenaline
- B** insulin
- C** oestrogen
- D** testosterone

25 Which row is usually correct for both nervous and hormonal coordination?

	nervous	hormonal
A	chemical impulses	electrical impulses
B	impulses travel through the blood stream	impulses travel through neurones
C	responds rapidly to stimuli	takes longer to respond to stimuli
D	responses are long-lasting	responses are short-lived

26 The diagram shows the structure of a human eye.

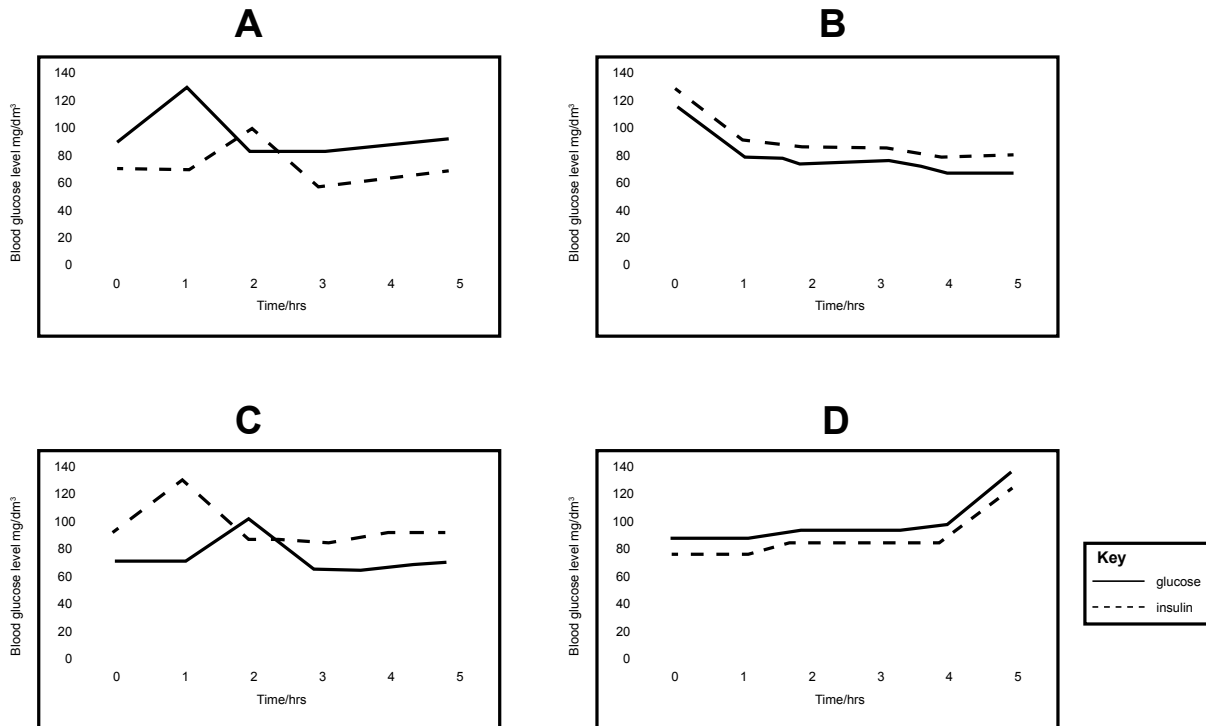


Which part contains muscles which controls the amount of light that is entering the eye?

27 Which is **not** a symptom of Type 1 diabetes?

- A blurred vision
- B extreme thirst
- C frequent urination
- D painful urination

28 The graph shows the glucose control in human blood by hormone insulin.



Which graph shows blood glucose control by insulin in a healthy person?

29 Which process is involved in the formation of gametes?

- A meiosis
- B mitosis
- C ovulation
- D fertilisation

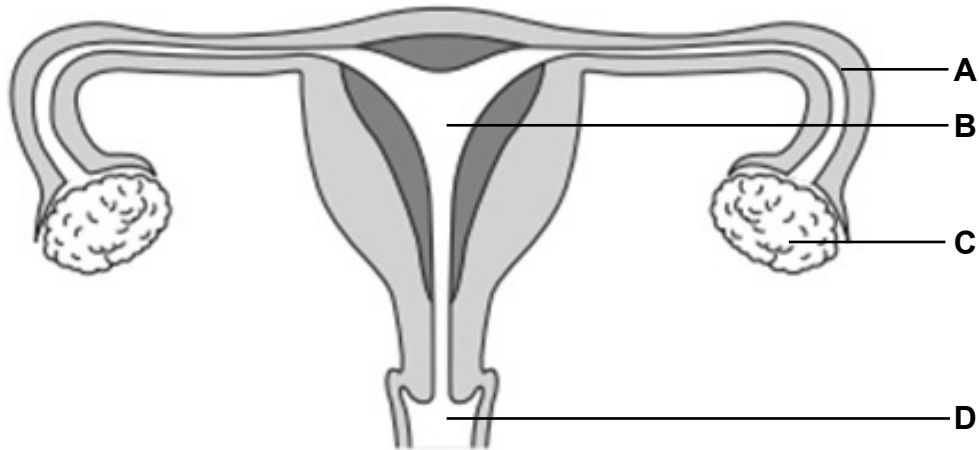
30 Which type of asexual reproduction method matches the type of organism in which it occurs?

	method	organism
A	binary fission	bacteria
B	tuber formation	fungi
C	binary fission	potatoes
D	spore formation	protocista

31 Which hormone causes ovulation?

- A** FSH
- B** oestrogen
- C** LH
- D** progesterone

32 The diagram shows parts of the female reproductive system.



At which part would a diaphragm be placed to prevent pregnancy?

33 Which environmental factors are necessary for seed germination?

- A** carbon dioxide, light and water
- B** light, oxygen and suitable temperature
- C** oxygen, water and suitable temperature
- D** oxygen, water and light

34 Which term defines a different version of the same gene?

- A** allele
- B** gene
- C** genotype
- D** phenotype

35 Tongue rolling in humans is dominant to non-tongue rolling. Two parents who can roll their tongues have three children. Two of the children can roll their tongues and one cannot.

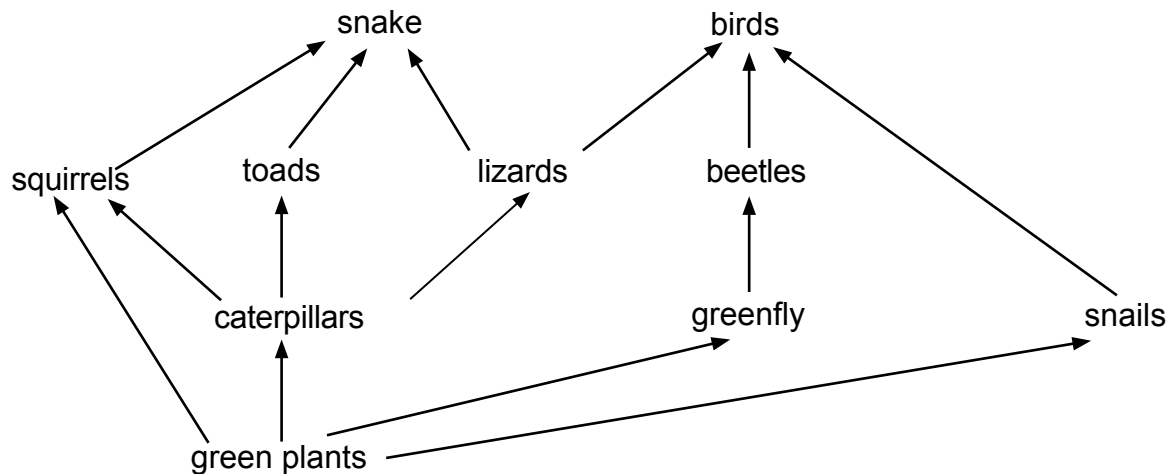
What is the genotype of the parents?

- A** TT and TT
- B** TT and Tt
- C** Tt and Tt
- D** tt and tt

36 Which of the following are typical symptoms of sickle cell anaemia?

- A** diarrhoea and great pain
- B** less oxygen to tissues and vomiting
- C** pale skin and back ache
- D** interruption of blood flow and great pain

37 The diagram shows a food web.



Which organisms are primary and secondary consumers?

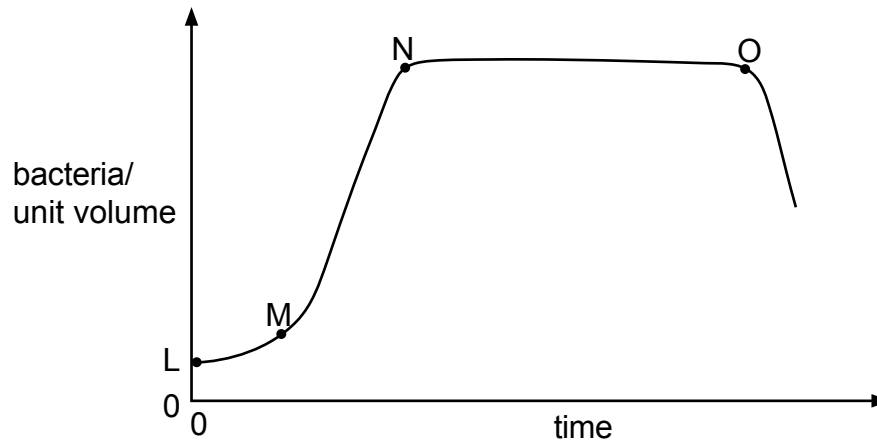
- A** beetles
- B** caterpillars
- C** lizards
- D** squirrels

38 Decomposition is a process that takes place as part of biochemical cycling of nutrients.

Which products of decomposition enter the atmosphere?

- A** carbon dioxide and nitrogen
- B** carbon dioxide and water
- C** oxygen and nitrogen
- D** oxygen and water

- 39 The graph shows a population growth curve for bacteria.



Between which points on the graph could the growth in the population be affected by relatively small number of bacteria?

- A L and M
 - B L and O
 - C M and N
 - D N and O
- 40 What changes does the runoff of fertilisers cause in the concentration of oxygen, number of bacteria and the number of fish in rivers?

	concentration of oxygen	number of bacteria	number of fish
A	decrease	decrease	increase
B	decrease	increase	decrease
C	increase	decrease	decrease
D	increase	increase	increase

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