

NAMIBIA SENIOR SECONDARY CERTIFICATE

BIOLOGY ORDINARY LEVEL

6116/1

PAPER 1 Multiple Choice

45 minutes

Marks 40

2023

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.

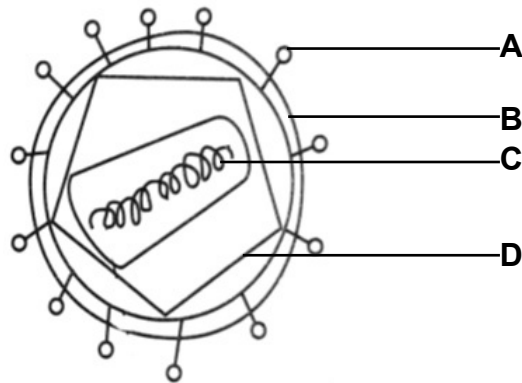
This document consists of **14** printed pages and **2** blank pages.



Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

- 1 A Grade 11 learner measured the length of three potato pieces that were left in distilled water for 1 hour.
- He then added all three measurements together and divided the sum by 3.
- Which mathematical procedure did the learner use?
- A** average
- B** fraction
- C** percentage
- D** ratio
- 2 The diagram shows the structure of a virus.

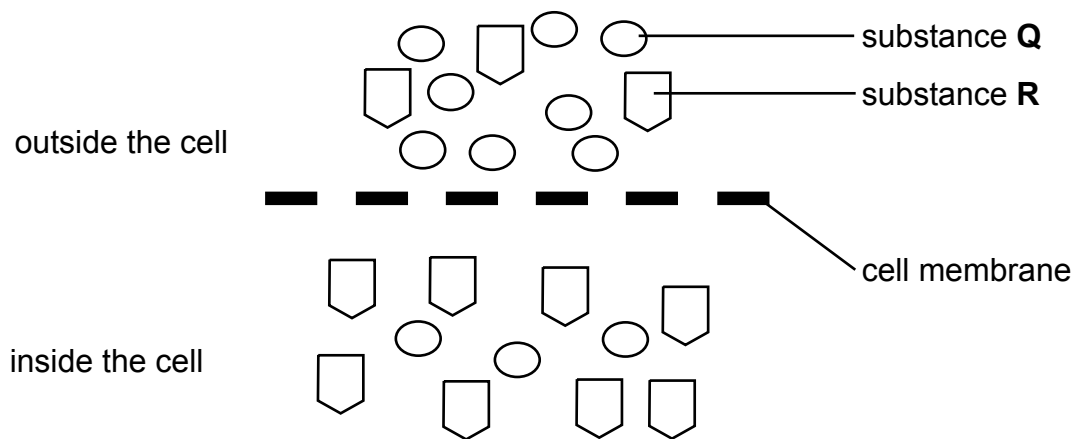


Which labelled structure is the genetic material?

- 3 Which row correctly matches a cell structure to its function?

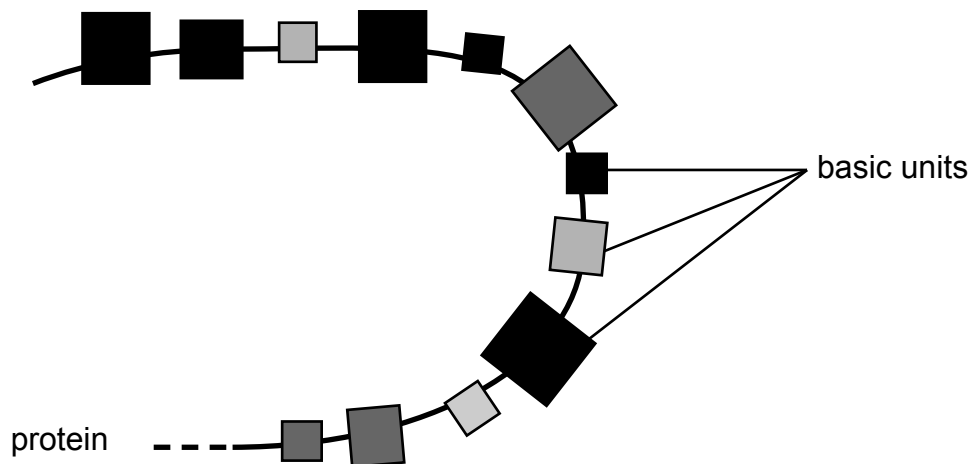
	cell structure	function
A	mitochondria	photosynthesis
B	ribosomes	protein synthesis
C	rough endoplasmic reticulum	digestion
D	vesicles	respiration

- 4 The diagram shows two substances **Q** and **R** moving across a cell membrane into the cell.



What can be done to facilitate the entry of substance **R** into the cell?

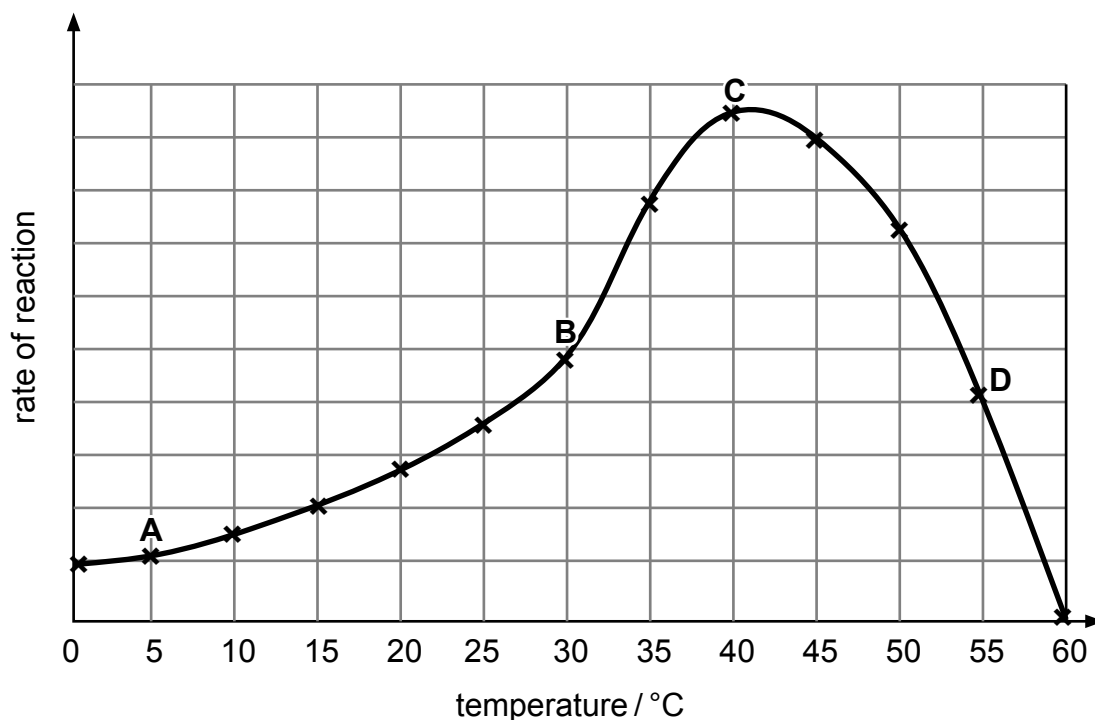
- A reduce the amount of substance **Q** outside the cell
 - B use optimum temperature around the cell
 - C increase the amount of substance **R** inside the cell
 - D use ATP energy for the process
- 5 The diagram shows the structure of a protein molecule.



What are the basic units making up a protein molecule?

- A amino acids
- B fatty acids
- C glycerol
- D glucose

- 6 The diagram shows the effect of temperature on an enzyme-controlled reaction.



Which letter represents the optimum temperature for this enzyme-controlled reaction?

- 7 Which leaf tissue contains the most chloroplasts?

- A lower epidermis
- B palisade mesophyll
- C spongy mesophyll
- D upper epidermis

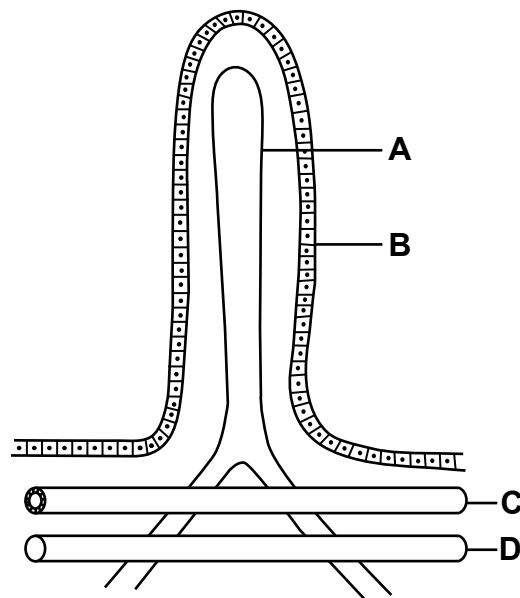
- 8 When carrying out a starch test on a leaf, the following four steps are carried out

- 1 boil a leaf in water
- 2 boil a leaf in ethanol
- 3 rinse the leaf in water
- 4 add iodine solution to a leaf

Why is step 3 necessary?

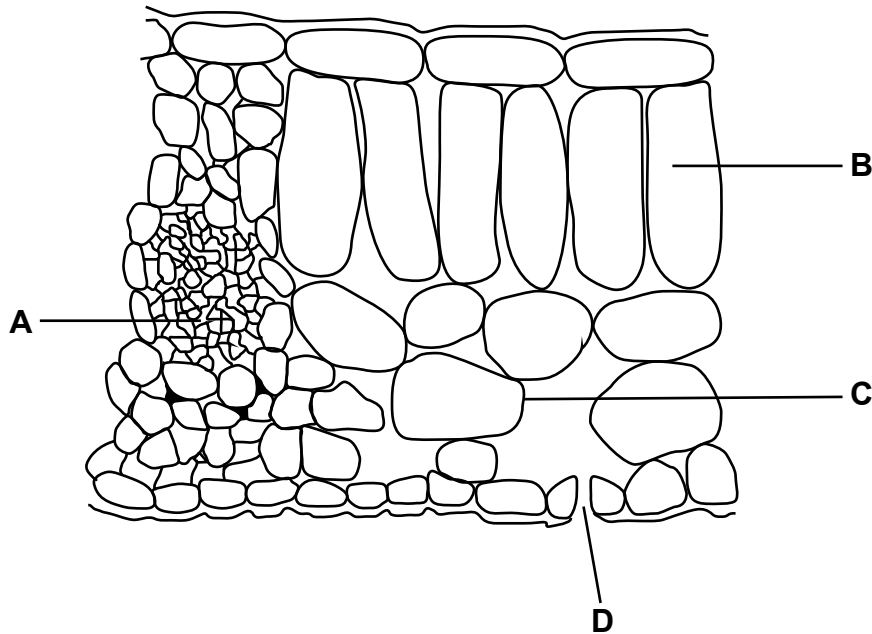
- A to break the cell membranes
- B to decolourise the leaf
- C to soften the leaf
- D to break cell walls

- 9 Which nutrient is lacking from the diet of a person with a swollen thyroid gland?
- A iodine
 - B iron
 - C vitamin A
 - D vitamin C
- 10 Which part of the alimentary canal is affected by the cholera bacterium?
- A large intestine
 - B oesophagus
 - C small intestine
 - D stomach
- 11 The diagram shows a structure of a villus.



Which labelled part of the villus absorbs fatty acids?

12 The diagram shows the internal structure of a leaf.



At which part does evaporation takes place?

13 Which chamber of the heart receives blood with the highest oxygen concentration?

- A** left atrium
- B** left ventricle
- C** right atrium
- D** right ventricle

14 What is the function of the lymphatic system?

- A** excrete waste
- B** protection from infections
- C** supply oxygen
- D** transport blood

15 Which blood component transports oxygen?

- A** plasma
- B** platelets
- C** red blood cells
- D** white blood cells

16 Which two substances may be found in lower concentration in the inspired air compared to expired air?

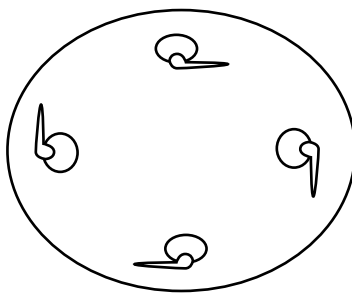
- A** nitrogen and oxygen
- B** nitrogen and water
- C** oxygen and carbon dioxide
- D** water and carbon dioxide

- 17** Which health condition is most likely caused by the accumulation of a layer of tar from tobacco smoke in the lungs?
- A** coronary heart disease
 - B** high blood pressure
 - C** low oxygen carrying capacity
 - D** lung cancer
- 18** Which is a product of anaerobic respiration in humans?
- A** alcohol
 - B** carbon dioxide
 - C** lactic acid
 - D** water
- 19** Which function is performed by the liver?
- A** controlling blood pH
 - B** producing insulin
 - C** producing urea
 - D** removing salts

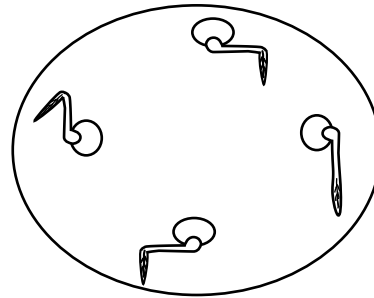
20 Which substance is removed from blood by a dialysis machine?

- A** amino acids
- B** glucose
- C** salts
- D** urea

21 The diagram shows seedlings with roots shortly after germination, and then two days after. Light is acting from upwards and gravity from downward.



shortly after germination

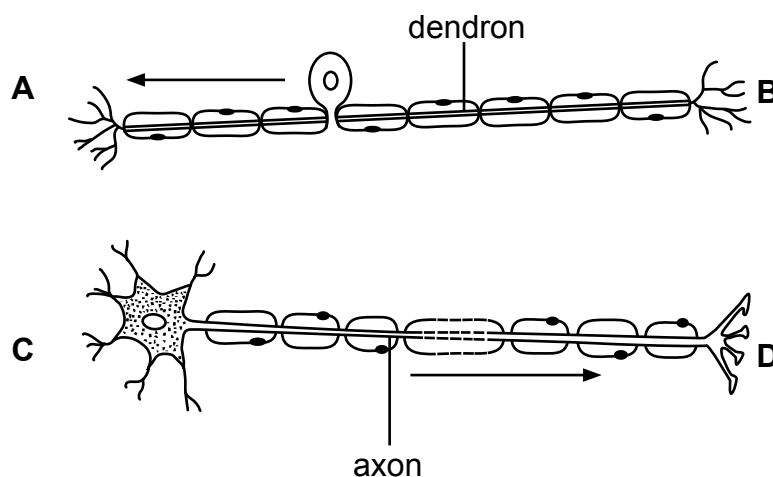


two days after

Which growth responses are shown after two days?

- A** negative gravitropism and negative phototropism
- B** negative phototropism and positive gravitropism
- C** positive gravitropism and positive phototropism
- D** positive phototropism and negative gravitropism

22 The diagram shows two neurones and the direction of impulse transmission.



At which labelled point will a neurone attach to an effector?

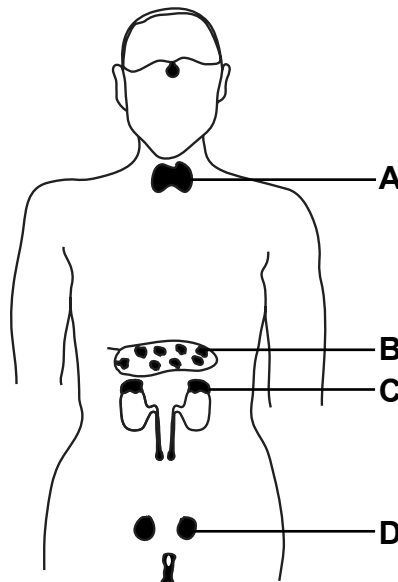
23 Which part of the eye detects light?

- A** cornea
- B** iris
- C** pupil
- D** retina

24 Which change enables the eye to accommodate a near object?

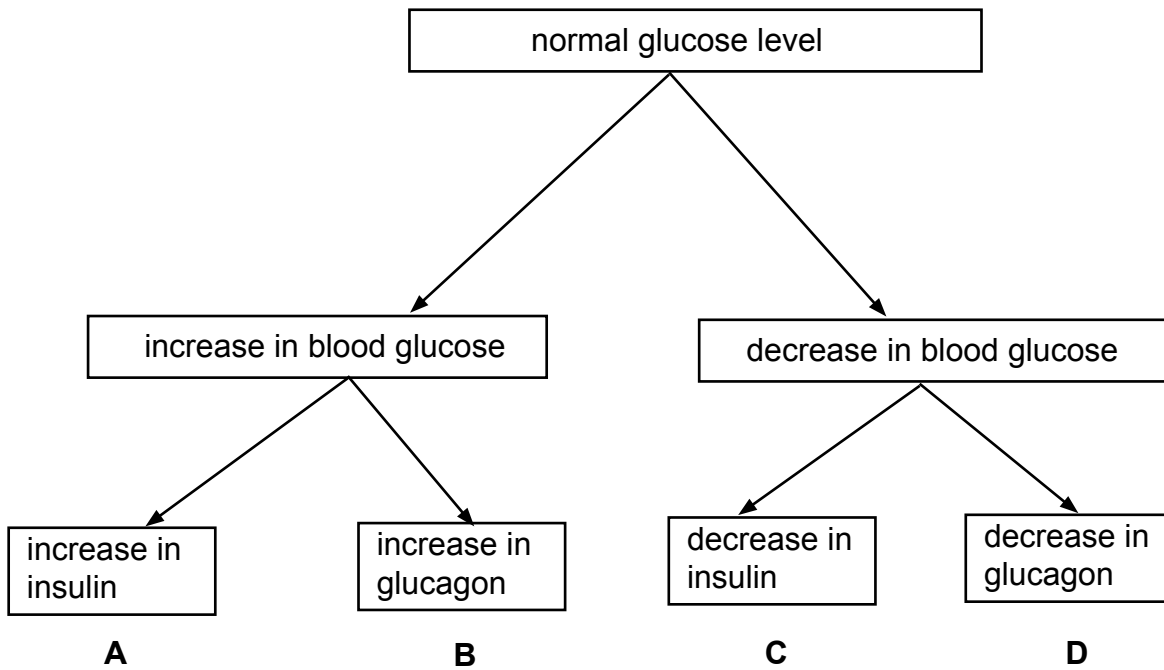
- A** ciliary muscles contract
- B** ciliary muscles relax
- C** suspensory ligaments tighten
- D** lens become thinner

25 The diagram shows some organs of the endocrine system.



Which organ produces adrenaline?

26 The diagram shows changes in blood glucose level and hormonal secretion.



Which letter shows the response resulting in a reduction in blood glucose level?

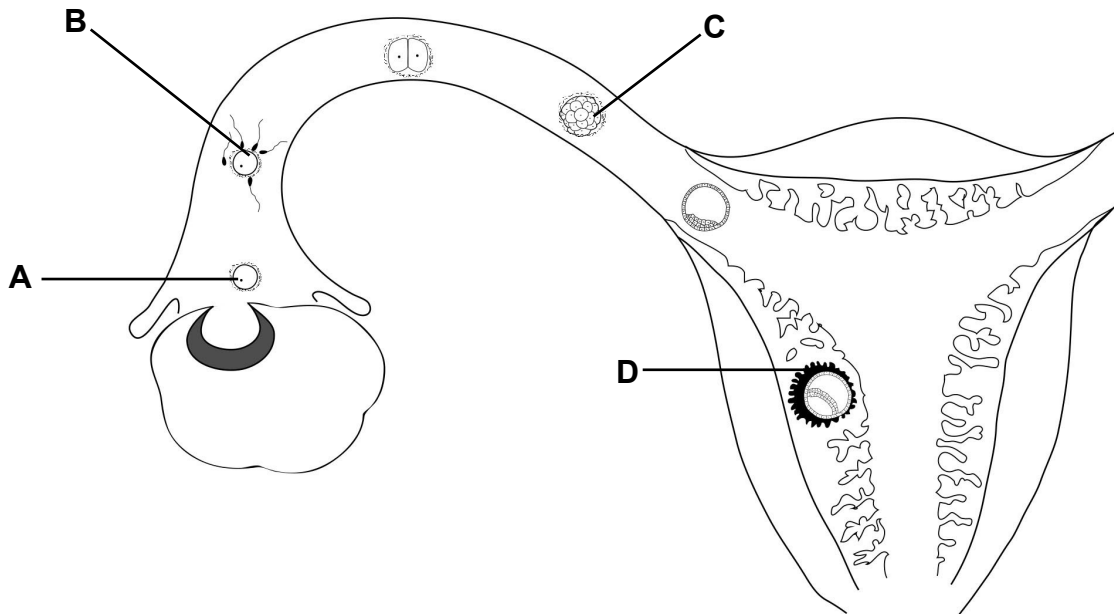
27 Which statement describes the products of mitosis correctly?

- A** four genetically identical cells
- B** four genetically different cells
- C** two genetically identical cells
- D** two genetically different cells

28 Which structure of the flower receives pollen grains during pollination?

- A** anther
- B** filament
- C** petal
- D** stigma

29 The diagram shows some stages in the female reproductive system.



Which stage is ovulation?

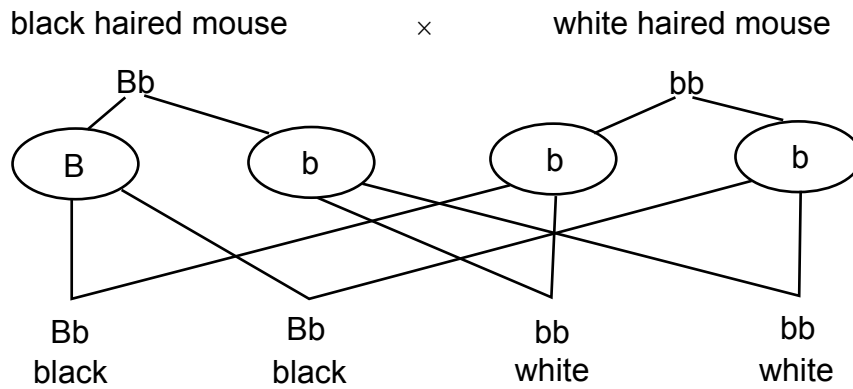
30 Which sequence shows the correct developmental stages in humans?

- A embryo → zygote → fetus
- B zygote → embryo → fetus
- C fetus → embryo → zygote
- D zygote → fetus → embryo

31 Which type of pathogen causes AIDS?

- A bacterium
- B fungus
- C protozoan
- D virus

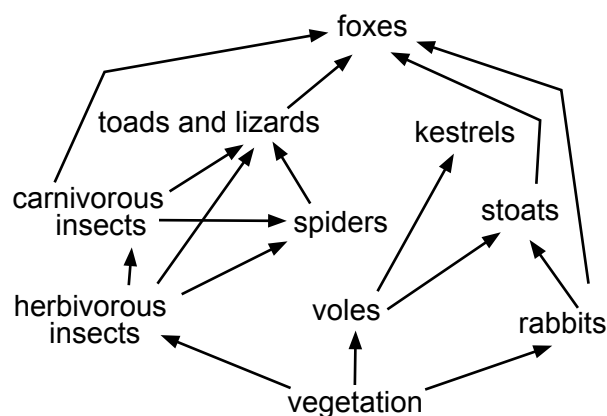
32 The diagram shows how characteristics are inherited in mice.



Which mouse in the diagram shows that the white hair characteristic is recessive?

- A** Bb parent
 - B** bb parent
 - C** Bb offspring
 - D** bb offspring
- 33** Which term is used to describe an organism as having two identical alleles of a particular gene?
- A** heterozygous
 - B** homozygous
 - C** genotype
 - D** phenotype
- 34** Which type of variation is controlled by genetic factors only?
- A** human height
 - B** size of leaves
 - C** skin colour
 - D** tongue rolling
- 35** Which term is generally used to describe plants that are adapted to grow in dry environments?
- A** dictotyledons
 - B** hydrophytes
 - C** monocotyledons
 - D** xerophytes

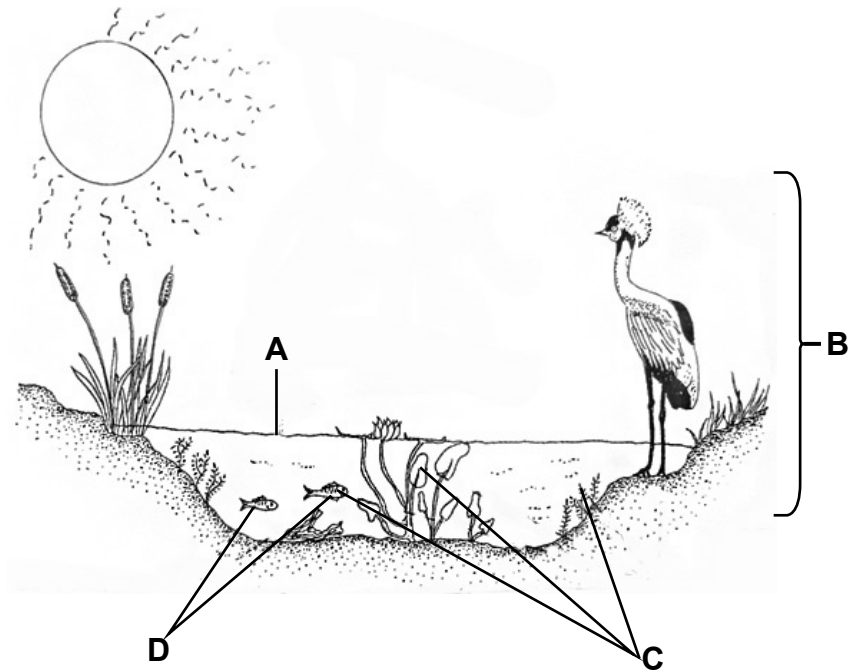
- 36** Which organisms are described as animals that obtain their energy by eating plants only?
- A** carnivores
B decomposers
C herbivores
D omnivores
- 37** The diagram shows a food web.



Which food chain is from this food web?

- A** vegetation → rabbits → stoats → foxes
B vegetation → voles → spiders → toads
C vegetation → voles → rabbits → spiders
D vegetation → spiders → kestrels → stoats
- 38** Which process breaks down nitrates into nitrogen gas?
- A** decomposition
B denitrification
C nitrification
D nitrogen fixation

39 The diagram shows a pond.



Which letter represents an ecosystem?

40 Which method of sustaining fish stock involves teaching fishermen and a community at large about the importance of maintaining fish stock?

- A captive breeding
- B education
- C re-stocking
- D setting fishing quotas

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