

The City School

Unified Mid-Year Examinations

2018 - 2019

Class 11



SCHOOL NAME

INDEX NUMBER

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DATE

BIOLOGY

Paper 1 Multiple Choice

5090/12

1 hour

Additional Materials: Multiple Choice Answer Sheet
Soft Pencil
Soft clean eraser

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.

Do not use paper clips, glue or correction fluid.

Write your School name, Index number and Date in the spaces provided.

There are **forty** questions on this paper. Answer **all** questions. For each question there are four possible answers **A, B, C** and **D**.

Choose the **one** you consider correct and record your choice in **pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

Any rough working should be done in this booklet.

Electronic calculators may be used.

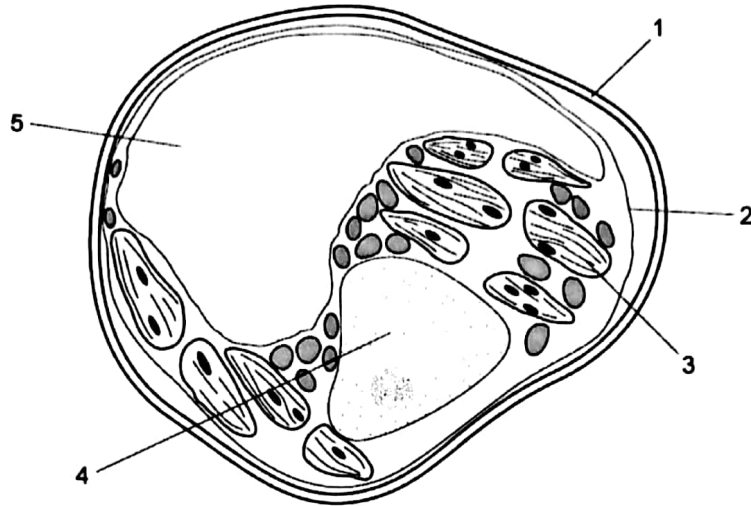
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Checked By: _____

Marks Talled By: _____

This document consists of **18** printed pages and **2** blank pages.

1 The diagram shows a plant cell.



Which features are not found in animal cells?

- A 1 and 2 B 1 and 3 C 2 and 4 D 2 and 5

2 The sentence describes the uptake of water by a plant.

Water moves into the root hairs of a plant by osmosis through a1..... permeable cell membrane,2..... a water potential gradient.

Which words correctly complete gaps 1 and 2?

	1	2
A	fully	down
B	fully	up
C	partially	down
D	partially	up

3 Below is a series of cell processes.

- 1 mineral ions entering root hair cells
- 2 glucose uptake by villus cells
- 3 water entering root hair cells

Which of these involve active transport?

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

4 Which table states the tests for different food groups?

A

test	reagent	positive result
starch	iodine	blue-black
reducing sugars	Benedict's	orange
protein	biuret	purple
fats	ethanol	milky white

B

test	reagent	positive result
starch	biuret	blue-black
reducing sugars	Benedict's	orange
protein	iodine	purple
fats	ethanol	milky white

C

test	reagent	positive result
starch	iodine	blue-black
reducing sugars	Benedict's	purple
protein	biuret	milky white
fats	ethanol	orange

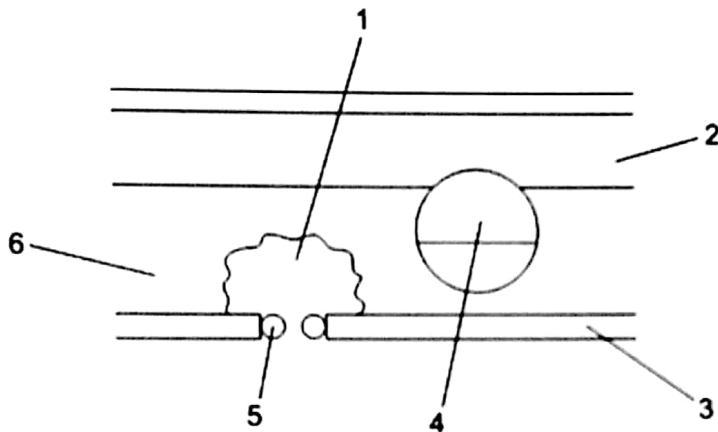
D

test	reagent	positive result
starch	biuret	blue-black
reducing sugars	Benedict's	purple
protein	iodine	milky white
fats	ethanol	orange

5 Which row shows what happens in photosynthesis?

	energy conversion	immediate product of photosynthesis	storage product of photosynthesis
A	chemical energy to light energy	glucose	starch
B	chemical energy to light energy	starch	glucose
C	light energy to chemical energy	glucose	starch
D	light energy to chemical energy	starch	glucose

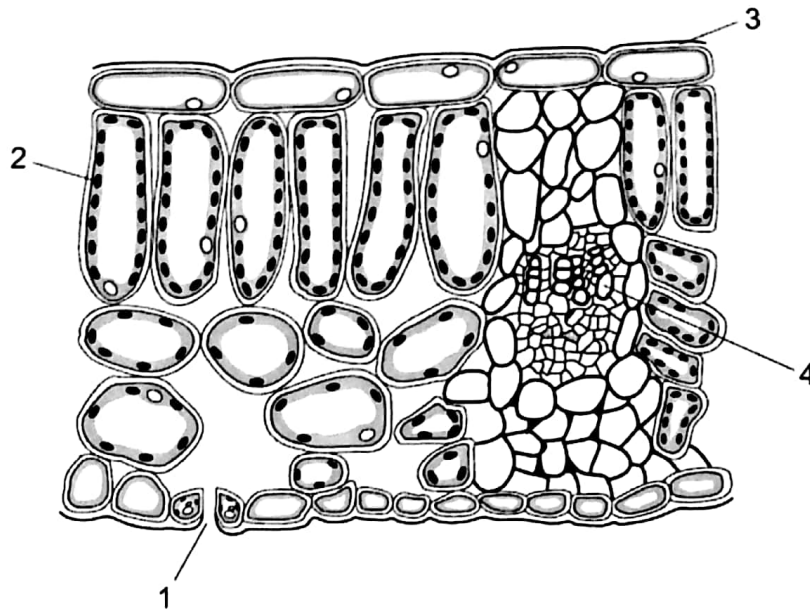
6 The diagram shows a cross-section of a dicotyledonous leaf.



Which labelled parts of the leaf carry out photosynthesis?

- A 1, 2 and 3 B 1, 3 and 4 C 2, 5 and 6 D 4, 5 and 6

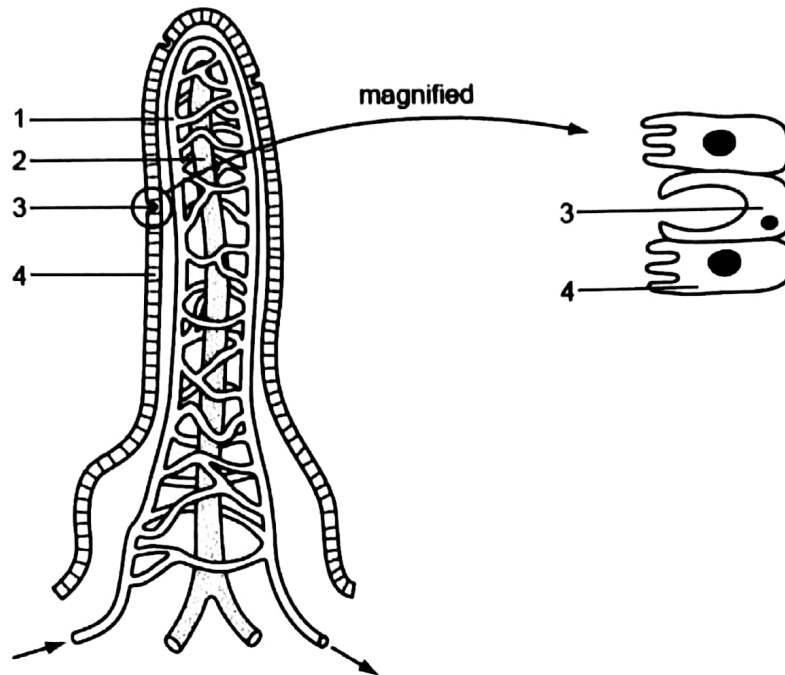
7 The diagram shows the structure of a leaf of a dicotyledonous plant.



Which are the functions of the parts labelled on the diagram?

	1	2	3	4
A	gaseous exchange	photosynthesis	reducing evaporation	transport
B	photosynthesis	gaseous exchange	transport	reducing evaporation
C	photosynthesis	reducing evaporation	gaseous exchange	transport
D	transport	reducing evaporation	gaseous exchange	photosynthesis

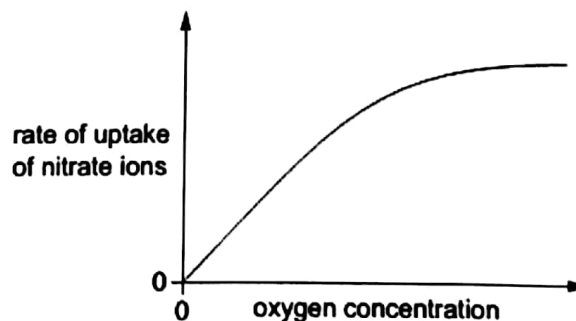
8 The diagram shows a section through a villus.



Which sequence correctly describes the functions of the numbered parts?

	1	2	3	4
A	transports digested fats	transports glucose	absorbs digested food	produces mucus
B	transports digested fats	transports glucose	produces mucus	absorbs digested food
C	transports glucose	transports digested fats	absorbs digested food	produces mucus
D	transports glucose	transports digested fats	produces mucus	absorbs digested food

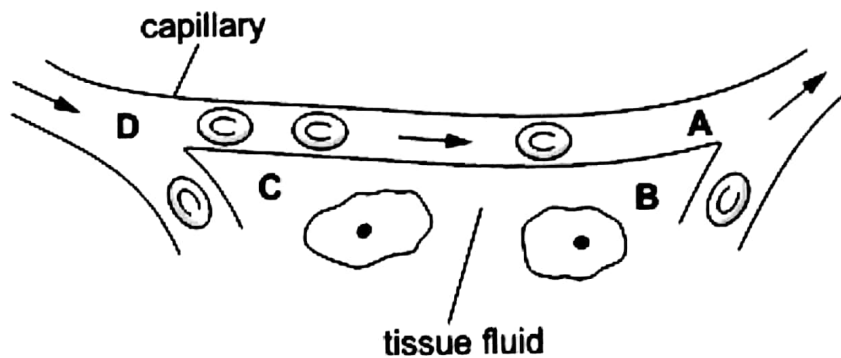
- 9 Which statement about chemical digestion in the human alimentary canal is correct?
- A Digestion of carbohydrates is completed in the colon.
 - B Enzymes are secreted to break down cellulose in the duodenum.
 - C Protein digestion is completed in the ileum.
 - D The stomach secretes enzymes to break down starch.
- 10 Which fact about proteins makes them essential components of the human diet?
- A They are an energy source.
 - B They are used in synthesising hormones.
 - C They can be stored as a food reserve.
 - D They provide amino acids for cell growth.
- 11 Which statement best describes the movement of water through the stem of a plant?
- A Water moves up the stem as it evaporates from the leaves.
 - B Water moves up the stem as it is pushed by water entering the roots.
 - C Water moves up the stem because it is used in photosynthesis.
 - D Water moves up the stem by osmosis.
- 12 The graph shows the effect of oxygen concentration on the uptake of nitrate ions from the soil into a root hair cell.



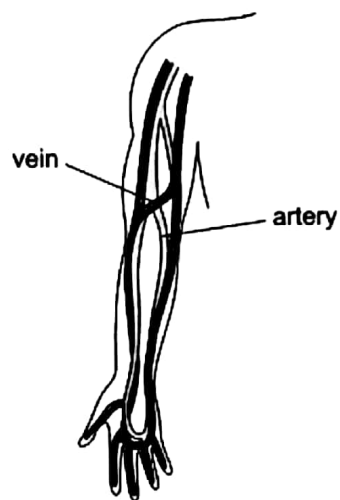
What can be concluded from this information?

- A Nitrate ions enter the root hair cell by active transport.
- B Nitrate ions enter the root hair cell by osmosis.
- C Nitrate ions leave the root hair cell by diffusion.
- D Nitrate ions leave the root hair cell in low oxygen concentrations.

- 13 The diagram shows the movement of blood through a tissue.
At which labelled point is the pressure highest?



- 14 The diagram shows arteries and veins in the human forearm.

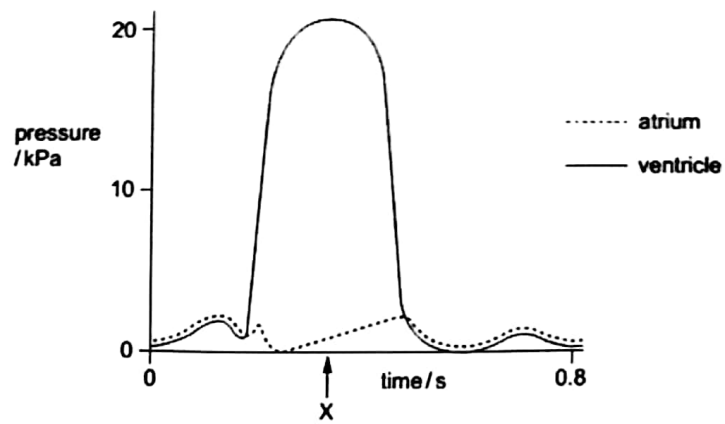


Which statements apply to a vein in the human forearm?

	carries oxygenated blood	has valves	blood is returning to the heart
A	✓	✓	x
B	✓	x	x
C	x	✓	✓
D	x	x	✓

key
✓ = yes
x = no

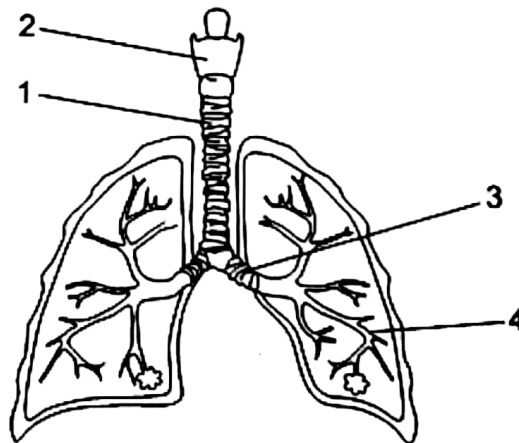
15 The graph shows pressure changes in the left atrium and in the left ventricle during one heartbeat.



What is the state of the valves in the heart at time X?

	left atrio-ventricular valve (bicuspid)	semi-lunar valve (in aorta)
A	closed	closed
B	closed	open
C	open	closed
D	open	open

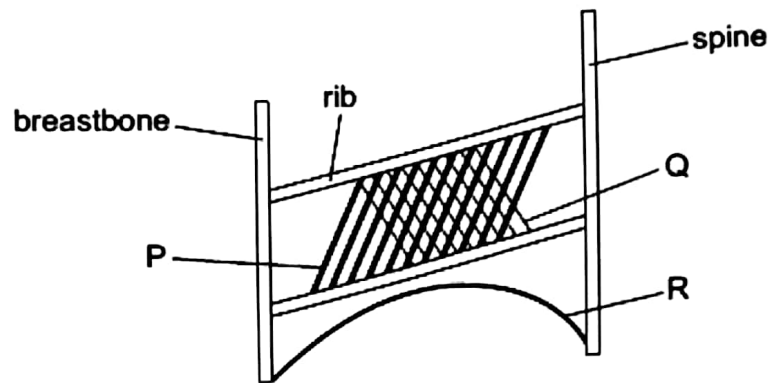
16 The diagram shows part of the human gas exchange system.



What are the labelled structures?

	larynx	trachea	bronchus	bronchiole
A	1	2	3	4
B	2	1	3	4
C	1	2	4	3
D	2	1	4	3

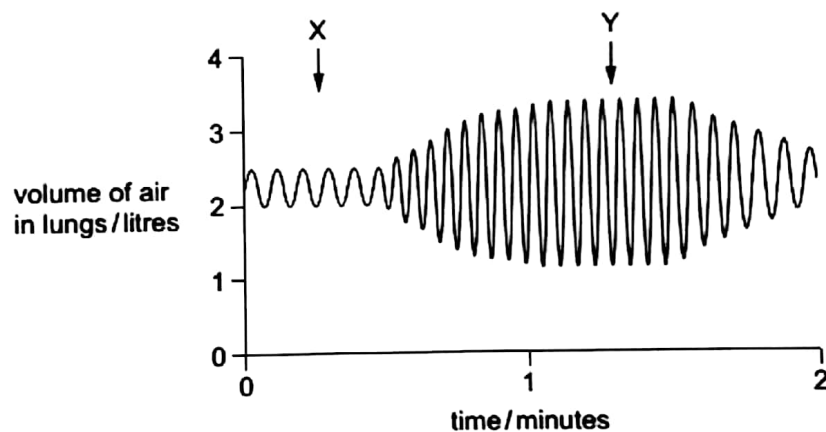
17 The diagram represents some of the muscles involved with breathing.



Which muscles are contracting during breathing in?

- A P and Q B Q and R C P and R D P, Q and R

18 The diagram shows changes in the volume of a person's lungs over a period of two minutes.



What could cause the change in the pattern of the graph between points X and Y?

- A changing from running to walking
 B changing from walking to running
 C increased frequency of contractions of the internal intercostal muscles
 D increased strength of contractions of the internal intercostal muscles
- 19 Which statement about the elbow joint is true?
- A If the biceps contracts, the triceps must relax.
 B The biceps and triceps can both be partially contracted.
 C When the biceps relaxes it returns at once to its original length.
 D When the biceps contracts it straightens the arm at the elbow.

20 During a sunny day, which substance is excreted from a leaf?

- A** carbon dioxide
- B** nitrogen
- C** oxygen
- D** sucrose

21 Which process is not a result of negative feedback?

- A** A decrease in the surrounding temperature leads to a decrease in respiration rate.
- B** A decrease in the surrounding temperature leads to a decrease in sweating.
- C** A decrease in the surrounding temperature leads to a decrease in blood flow through the skin surface.
- D** A decrease in the surrounding temperature leads to shivering.

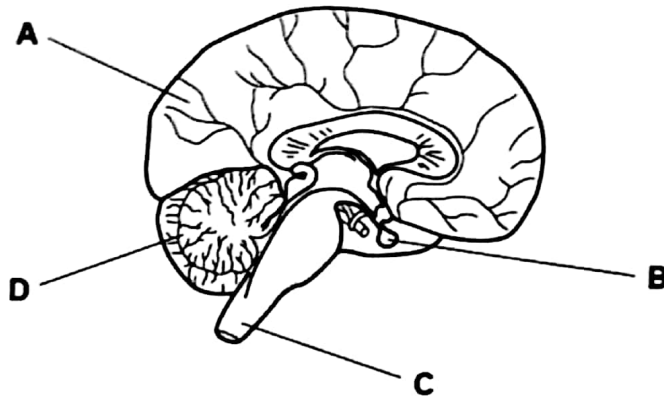
22 What are the functions of the relay, motor and sensory neurones in a reflex response?

	relay neurone	motor neurone	sensory neurone
A	to connect neurones within the central nervous system	to conduct impulses to the effector from the central nervous system	to conduct impulses from the receptor to the central nervous system
B	to conduct impulses to the effector	to connect neurones within the central nervous system	to receive the stimulus
C	to conduct impulses from the central nervous system to the effector	to conduct impulses from the receptor to the central nervous system	to connect neurones within the central nervous system
D	to conduct impulses from the receptor to the central nervous system	to conduct impulses from the receptor to the central nervous system	to conduct impulses to the effector

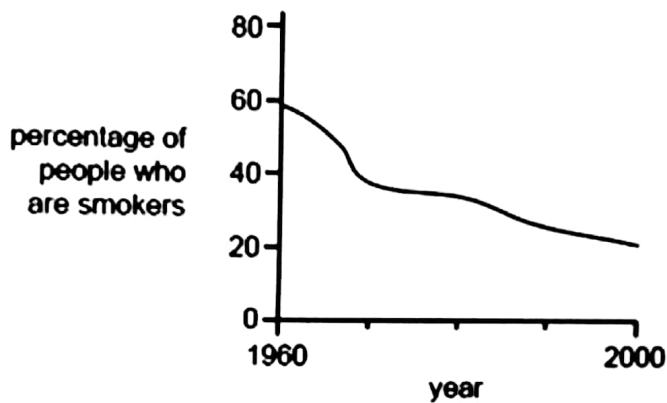
23 Which structures cover the pupil at the front of a human eye?

- A** conjunctiva and cornea
- B** conjunctiva and sclera
- C** cornea and retina
- D** retina and sclera

- 24 The diagram represents a section through the brain and part of the spinal cord.
Which part of the brain controls balance?



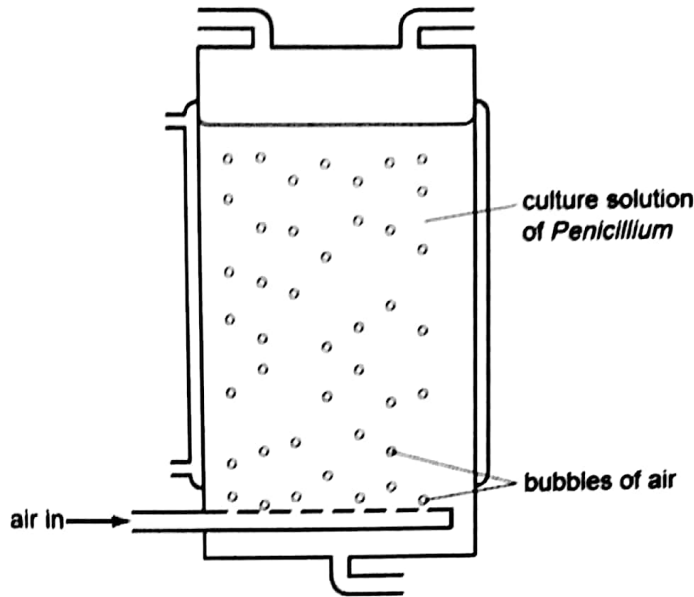
- 25 The graph shows, for one country, the percentage of people who smoked cigarettes in the years 1960–2000.



Which statement about what happened after 1960 is supported by the graph?

- A fewer people were dying of lung cancer
- B more smokers were dying
- C smoking was becoming less socially acceptable
- D smoking was causing more lung cancer

26 The diagram shows a fermenter used to produce penicillin.



Why is air pumped into the fermenter?

	to mix culture	to provide oxygen	
A	✓	✓	key ✓ = yes x = no
B	✓	x	
C	x	✓	
D	x	x	

27 Which is produced during anaerobic respiration in muscles?

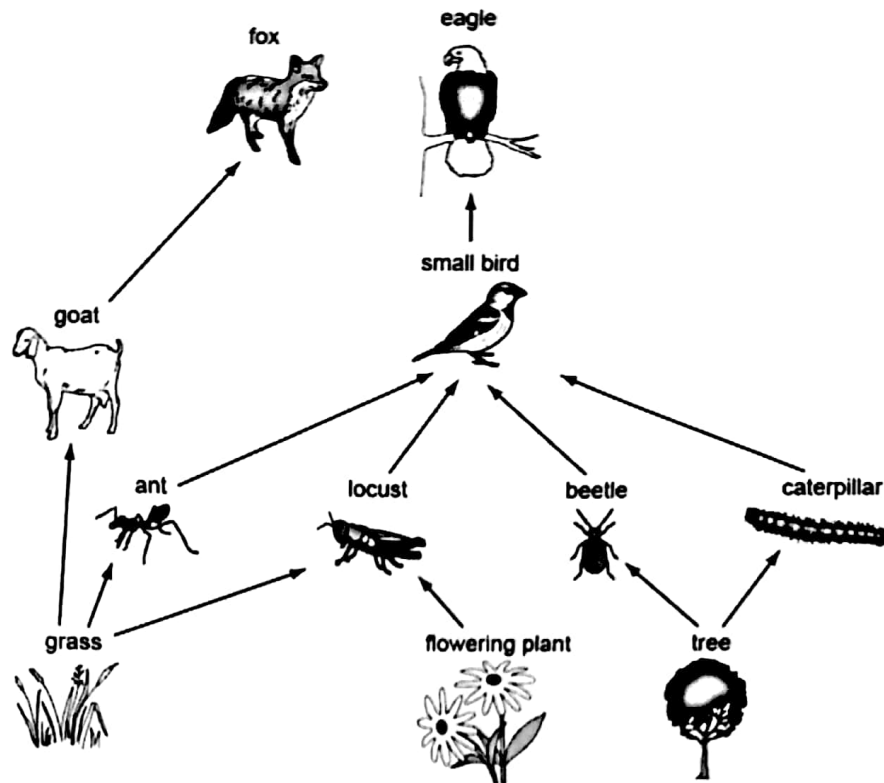
- A alcohol, carbon dioxide and water
- B carbon dioxide and lactic acid
- C carbon dioxide only
- D lactic acid only

28 A farmer is growing wheat in a field. The farmer uses insecticides to kill insect pests and chemicals to kill weeds in the field. Which statements about this field are correct?

- 1 Both the wheat and the weeds are producers.
- 2 Insects feed at the first trophic level.
- 3 Weeds may use light, water and mineral ions that the wheat plants need.

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

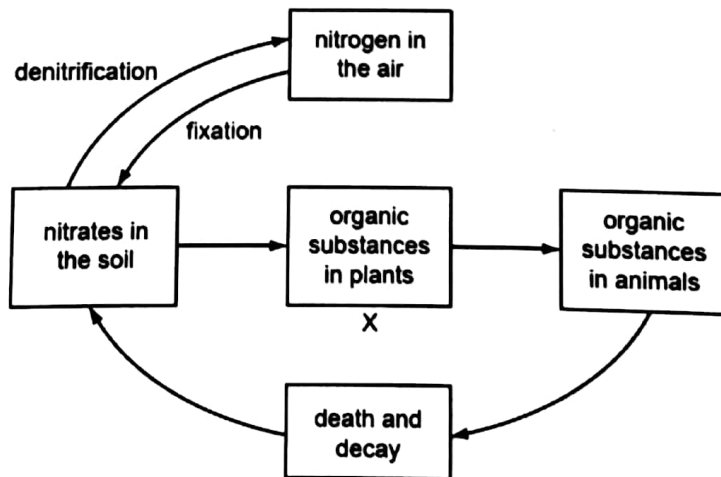
29 The diagram shows part of a food web.



How many herbivores are shown?

- A 3 B 4 C 5 D 6

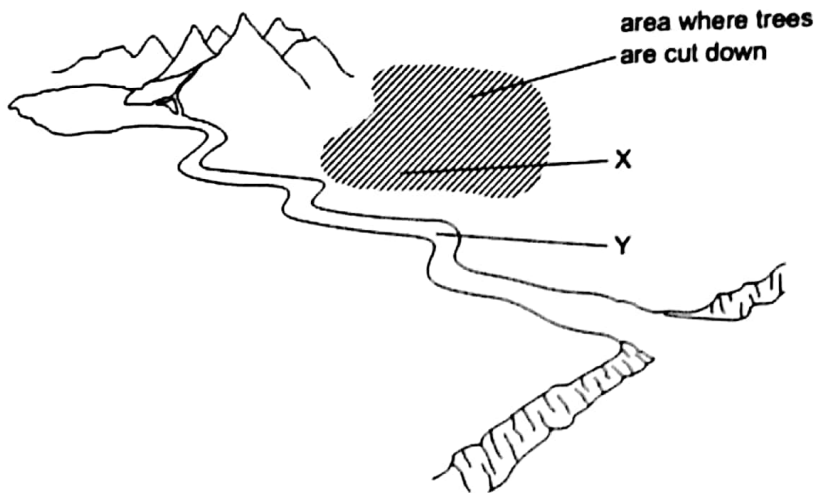
30 The diagram shows part of a nitrogen cycle.



Which substance at X forms part of this cycle?

- A cellulose
 B fat
 C protein
 D starch

- 31 The malaria parasite can be transferred from mosquitoes to humans when:
- A humans swim in lakes containing mosquito larvae
 - B female adult mosquitoes feed.
 - C mosquito larvae contaminate drinking water.
 - D mosquitoes lay eggs near places where humans live.
- 32 The diagram shows a river that flows down from the mountains to the sea. Trees are cut down and removed from the shaded area.



After a rainstorm, what is the effect on the nitrate ion content at X and at Y?

	nitrate ion content at X	nitrate ion content at Y
A	increases	increases
B	increases	decreases
C	decreases	increases
D	decreases	decreases

33 The seeds of some plants will not normally germinate until they have been in the ground for several months.

Some seeds were collected from a plant of this type.

The seeds were divided into three groups.

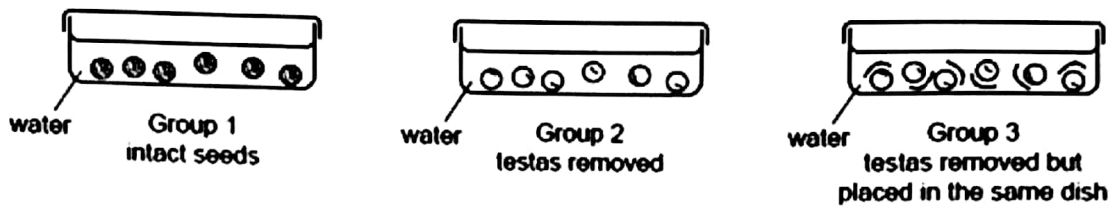
Each group of seeds was put into a shallow dish and covered with water.

The lid that was used was loose fitting so that oxygen could reach the seeds.

Group 1 were intact seeds.

Group 2 were seeds from which the testas had been removed.

Group 3 were seeds from which the testas had been removed, but the testas were placed separately in the same dish.

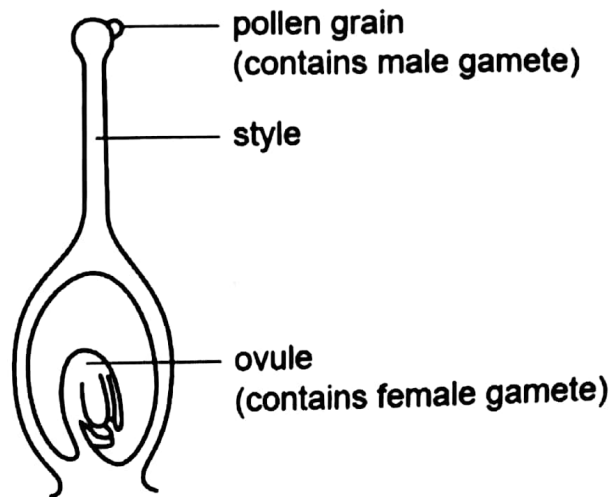


Only the seeds in Group 2 germinated.

What would be the most logical extension of this experiment?

- A Change the water of the seeds in group 1 every day to see if they germinate.
- B Compare the germination of aerated seeds with an unaerated control group.
- C Repeat the experiment at several different temperatures.
- D Repeat the experiment using different species of seed.

34 The diagram shows part of a flower at the time of pollination.



How does the male gamete reach the female gamete?

- A A pollen tube grows down the style.
- B The pollen grain moves down the style.
- C The male gamete digests its way down the style.
- D The male gamete swims down the style.

35 What is the path taken by sperm cells during ejaculation from the male reproductive system?

- A sperm duct → testis → urethra
- B sperm duct → urethra → testis
- C testis → sperm duct → urethra
- D testis → urethra → sperm duct

36 Which row correctly pairs a hormone with its function in the menstrual cycle?

	hormone	function
A	FSH	stimulates release of eggs
B	LH	stimulates release of eggs
C	oestrogen	maintains uterus lining
D	progesterone	repairs uterus lining

37 A red-flowered plant is crossed with a white-flowered plant. All the offspring have red flowers.

What is the genotype of these offspring?

- A** RR and Rr
- B** RR only
- C** Rr only
- D** rr only

38 Which statements about genetic engineering to produce human insulin are correct?

- 1 The human insulin gene is cut out of human DNA.
- 2 The insulin gene is inserted into bacterial DNA.
- 3 The genetically engineered bacteria are cultured in large numbers.
- 4 These cultured bacteria are used in injections for diabetics.

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

39 Over several hundred years, the milk production of a particular type of farm animal has steadily increased.

How has this been achieved?

- A** artificial selection
- B** continuous variation
- C** genetic engineering
- D** natural selection

40 Which of these may be heterozygous?

- A** a haploid cell
- B** an allele of a gene
- C** an organism with a dominant phenotype
- D** an organism with a recessive genotype