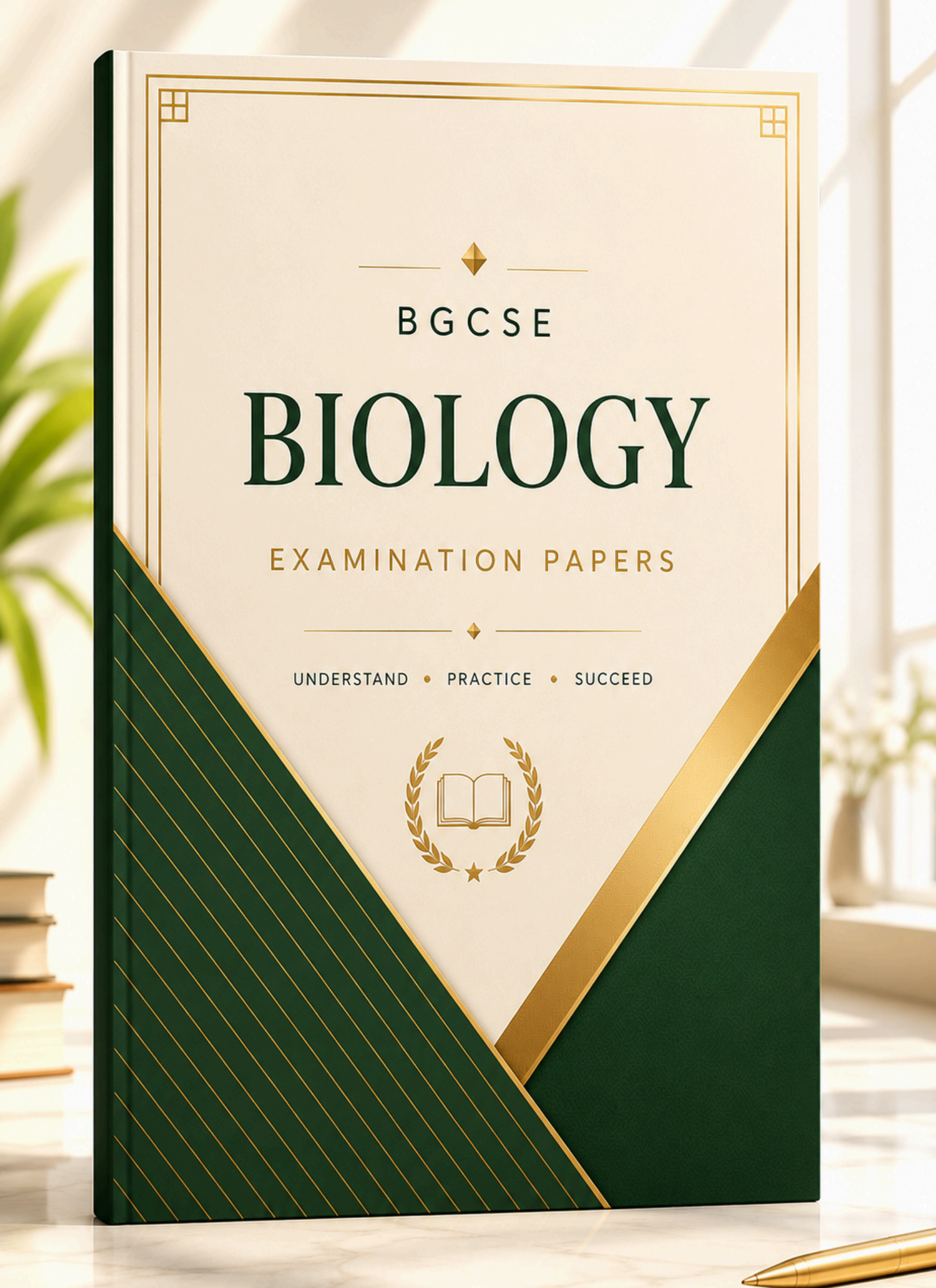
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3009/1 **BGCSE**

School Number	Candidate Number

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BIOLOGY

PAPER 1 3009/1

Monday **19 MAY 2025** **9:00 a.m.–10:15 a.m.**
(1 hr. 15 mins.)

MINISTRY OF EDUCATION
NATIONAL EXAMINATIONS

BAHAMAS GENERAL CERTIFICATE OF SECONDARY EDUCATION

INSTRUCTIONS AND INFORMATION FOR CANDIDATES

Do not open this booklet until you are told to do so.

Write your school number, candidate number, surname, name and initials in the spaces provided above.

There are fifty questions on this paper.

Answer **ALL** questions.

For each question, there are four possible answers labelled **A, B, C,** and **D.**

Choose the one you consider correct and circle the **LETTER** of your choice in the booklet.

Calculators are permitted however **NO** graphing calculators are allowed.

FOR EXAMINER'S USE ONLY	
Total marks	

This question paper consists of _22_ printed pages and _2_ blank pages.

1. The scientific name for a ruby-throated hummingbird is *Archilochus colubris*.

What do the two words in the name *Archilochus colubris* represent?

A family, class

B genus, species

C kingdom, phylum

D order, taxon

2. Which equipment would be most suitable for carrying out a study of vegetation in a woodland?

A a measuring tape and a pit fall trap

B a measuring tape and a quadrat

C a quadrat and a sweep net

D a pit fall trap and a sweep net

3. Which of the following includes organisms of only one species?

A community

B ecosystem

C kingdom

D population

4. Which of the following is an example of an abiotic factor in an ecosystem?

A competition

B fern

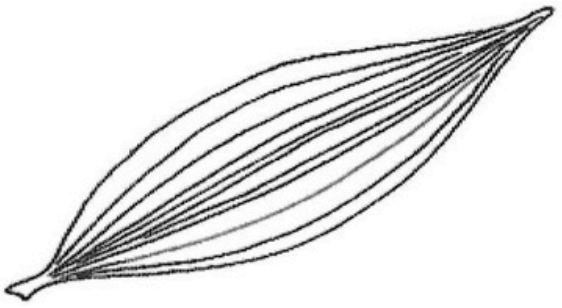
C predation

D sunlight

5. What are characteristics of the Nassau Grouper?

	body covered with scales	body temperature changes	has a lateral line
A	✓	✗	✗
B	✓	✓	✓
C	✗	✗	✗
D	✗	✓	✓

6. The diagram shows a leaf from a plant.



Which feature is **not** expected in a plant with leaves of this type?

A flowers have petals in multiple of three

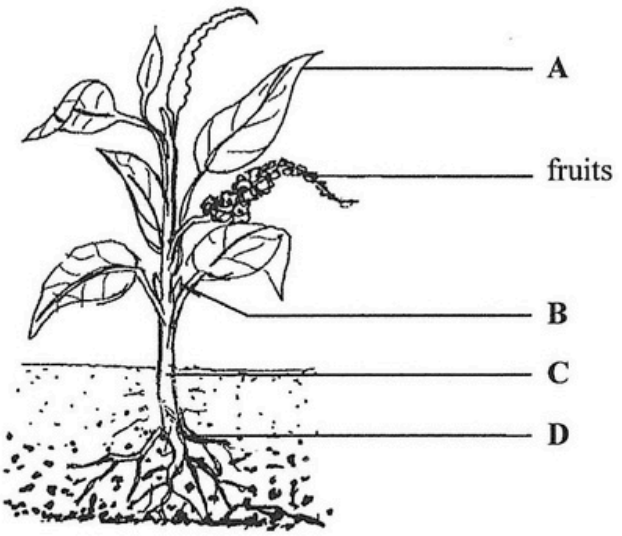
B narrow leaves with parallel veins

C one cotyledon

D vascular bundles in the stem are arranged in a distinct ring so that they are all about the same distance from the centre

7. The diagram shows a growing plant.

Which of the labelled parts provides sugars to the developing fruits for growth?



8. Which term refers to the place within an environment where a species of organism lives?

A community

B ecosystem

C habitat

D niche

9. Bahamian Pine forests are regularly affected by forest fires. These fires kill competitor species, and create space for seeds of Caribbean pine trees to germinate and grow.

Which statement about Bahamian pine forests is correct?

A Adult Caribbean pine trees are usually killed by forest fires.

B Seedlings and young Caribbean pine trees are very resistant to heat and survive forest fires unharmed.

C The bark of Caribbean pine trees burns easily and for long periods of time due to the resin that the bark contains.

D Without forest fires, Bahamian pine forests would be replaced by hardwood forest.

10. Why are bacterial cells classified as prokaryotic cells?

A Their genetic material is not found within the nucleus.

B They are simple and small.

C They have a cell wall.

D They reproduce by budding.

11. Which organism does **NOT** have protected status in a Bahamian National Park?

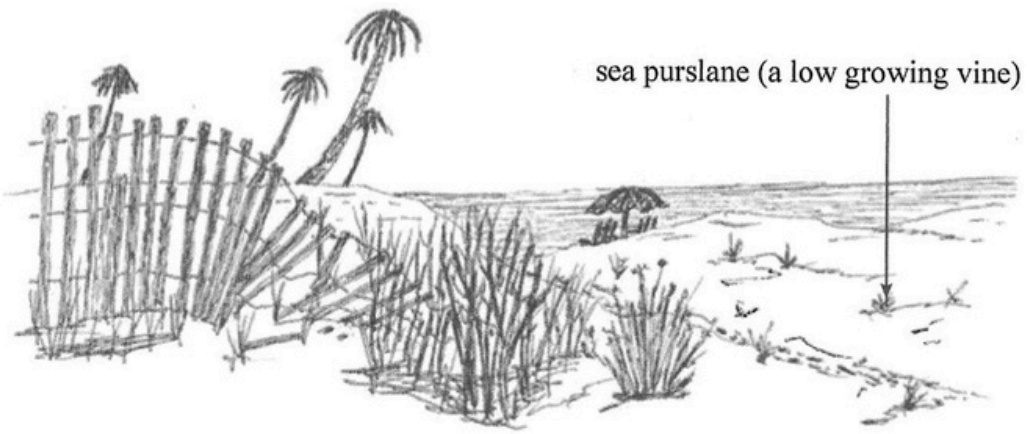
A Bahamian boa constrictor

B Bahamian parrot

C Bahamian swallow tail butterfly

D green turtle

12. The diagram shows a section of a sandy seashore.



In which zone of the sandy seashore are low-growing vines such as sea purslane typically found?

A intertidal zone

B fixed dune zone

C pioneer zone

D spray zone

13. Which National park is the site of the largest breeding colony of West Indian flamingoes?

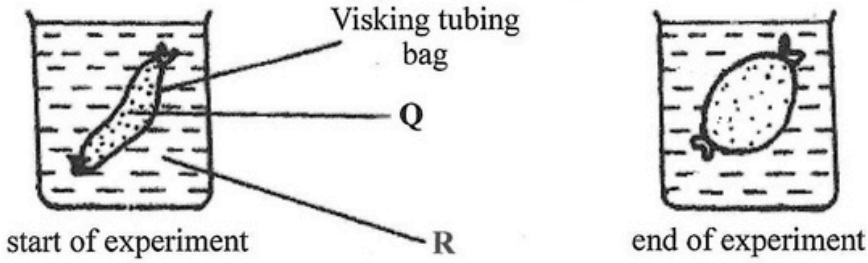
A Abaco National Park

B Bonefish Pond National Park

C Inagua National Park

D Lucayan National Park

14. The diagram shows an experiment that is set up to show the movement of substances across Visking tubing. Visking tubing is partially permeable.



Which statement identifies a combination of Q and R that could lead to the results shown in the diagram?

A **Q** and **R** are both distilled water.

B **Q** and **R** are both 20% sucrose solution.

C **Q** is 20% sucrose solution and **R** is 1% sucrose solution.

D **Q** is 1% sucrose solution and **R** is 20% sucrose solution.

15. Which process is responsible for gas exchange in the lungs?

A active transport

B diffusion

C osmosis

D translocation

16. Which of the following food preservation technique creates a high solute concentration that restricts the growth of microbes?

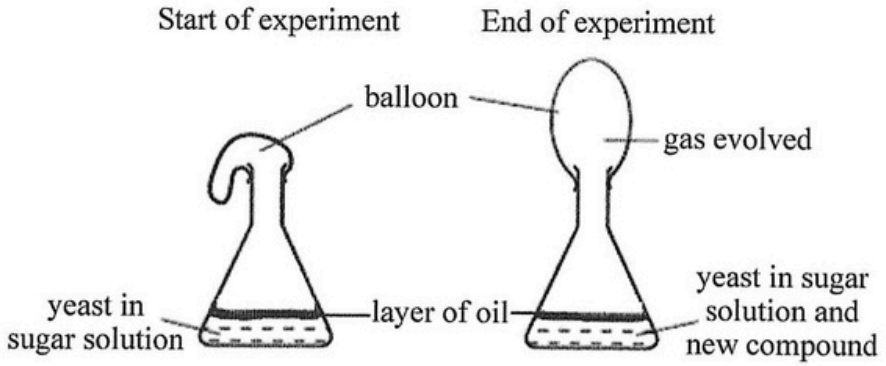
A boiling

B freezing

C pickling

D sugaring

17. The diagram represents an experiment to investigate respiration in yeast. The experiment was left for 24 hours.



Which statement correctly explains the increase in the size of the balloon?

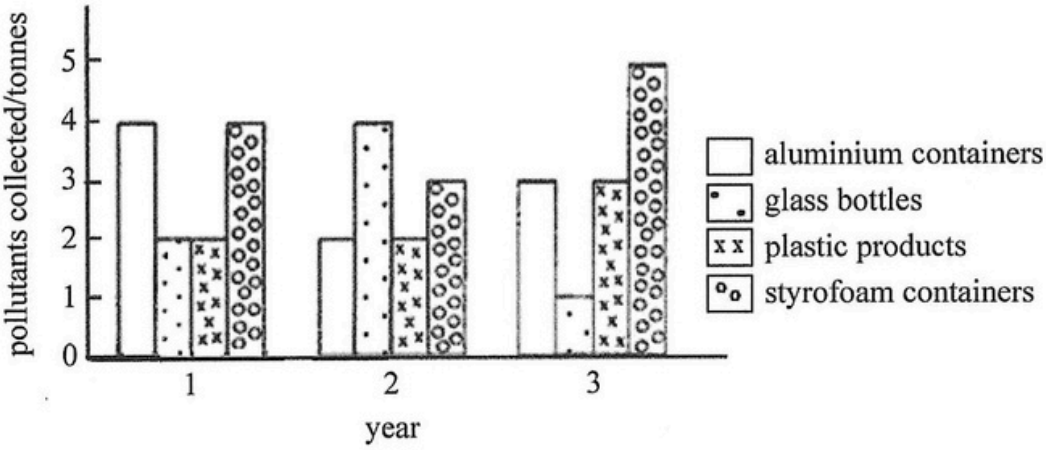
A Oxygen is produced because of aerobic respiration.

B Oxygen is produced because of anaerobic respiration.

C Carbon dioxide is produced because of aerobic respiration.

D Carbon dioxide is produced because of anaerobic respiration.

18. The diagram shows the quantities of various land pollutants that were collected on a beach in southern New Providence over a 3 year period.



Which pollutant was collected in the largest quantities over the three years?

A aluminium cans

B glass bottles

C plastic containers and rings

D styrofoam containers

19. Which of the following statements about haemoglobin is correct?

A Haemoglobin binds tightly to both oxygen and carbon dioxide.

B Haemoglobin decreases the ability of the blood to transport carbon dioxide.

C Haemoglobin increases the ability of the blood to transport oxygen.

D Most of the haemoglobin is dissolved in the plasma.

20. Which type of tooth is most efficient in breaking up pieces of food for chemical digestion to occur?

A **B** **C** **D**

21. Which row correctly describes the functions of the large intestine and stomach respectively?

	large intestine	stomach
A	breaks down carbohydrates	filters the blood to remove wastes
B	breaks down food into smaller molecules	reabsorbs water from undigested food
C	filters the blood to remove wastes	breaks down carbohydrates
D	reabsorbs water from undigested food	breaks down molecules of food into smaller molecules

22. What is one function of white blood cells?

A carry oxygen around the body

B engulf invading bacteria

C heal cuts and bruises

D produce mucous

23. Which of the following correctly shows the use of magnesium and nitrogen in plants?

	magnesium	nitrogen
A	to make carbohydrates	to make chlorophyll
B	to make chlorophyll	to make proteins
C	to make proteins	to make roots healthy
D	to make roots healthy	to make carbohydrates

24. Which of the following statements is correct about lymphatic vessels that are rich in fats?

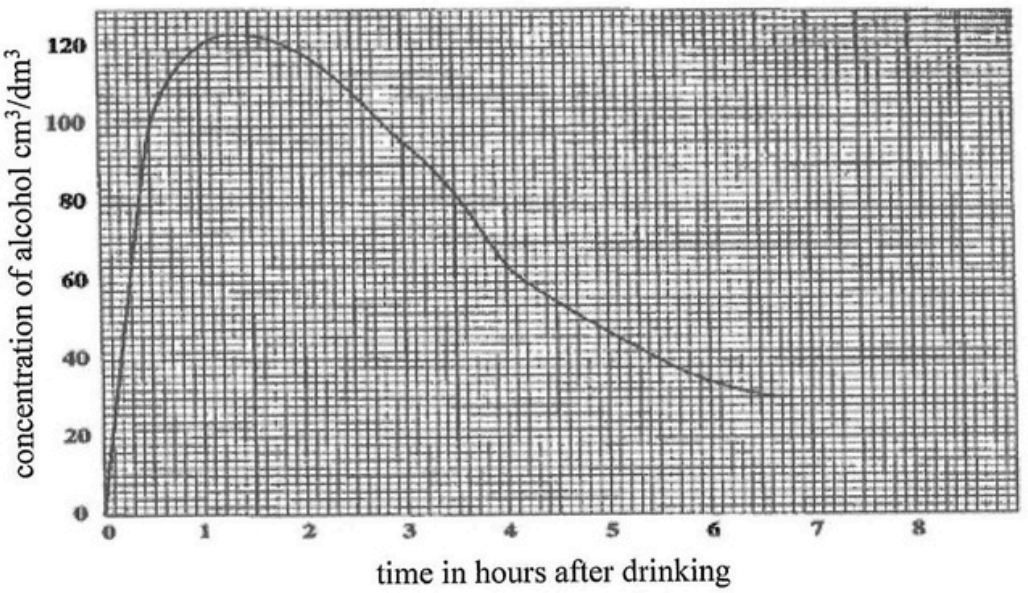
A They are found only in the large intestines.

B They are found only in the pancreas.

C They are found in the small intestines.

D They are found in the stomach.

25. The diagram shows the concentration of alcohol in cm^3/dm^3 blood over an 8 hour period.



If the legal limit to drive is 80 cm^3/dm^3 and under, how long will it take after drinking alcohol for it to be legal to drive again?

A 1 hour

B 2.5 hours

C 3 hours

D 3.5 hours

26. In an experiment to determine the weight loss from different leaf surfaces, four leaves of equal surface area were taken from a leafy shoot of a well-watered plant. Four leaves were treated as follows:

Leaf	Treatment administered
1	Both surfaces were smeared with vaseline
2	Only the upper surface vaseline
3	Only the lower surface was smeared with vaseline
4	Neither surface was smeared with vaseline

The leaves were weighed and left for 48 hours, after which they were reweighed.

Which treatment resulted in the greatest loss in mass in ascending order?

A 1, 2, 4, 3

B 1, 3, 2, 4

C 2, 4, 3, 1

D 3, 4, 1, 2

27. Which statement correctly describes genetically modified foods (GMF)?

A foods that have been produced from plants and animals grown under laboratory conditions.

B foods produced from plants and animals that have been sprayed with chemicals to destroy predators.

C foods produced from plants and animals that have little nutritional value.

D foods produced from plants and animals that have been given genes from a different species.

28. Plants in habitats with limited water availability have adaptations to reduce the rate of transpiration.

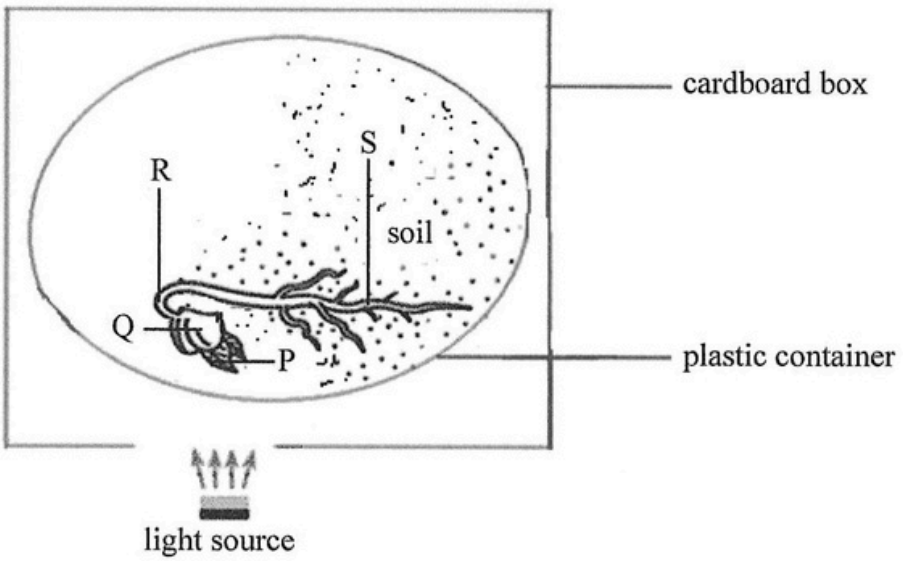
Which row correctly describes adaptations of a plant that will reduce the rate of transpiration?

	plant	adaptation
A	cactus	broad flat leaves with many stomata
B	mangrove	leaves with thick waxy cuticle with few stomata
C	rhizome	thick stems with spike-like leaves
D	water hyacinth	rolled leaves with interlocking hairs

29. Which row correctly defines homeostasis and osmoregulation?

	homeostasis	osmoregulation
A	The maintenance of the correct pH in the blood.	The secretion of water by cells.
B	The regulation of internal conditions in the body.	The regulation of water in the body.
C	The removal of excess materials from the body.	The maintaining of body temperature of 37 °C.
D	The regulation of the temperature of the body.	The stimulation of endocrine glands.

30. The diagram shows a bean seedling growing in a horizontal position.



Where is there a collection of auxins that cause the plumule to bend towards light?

A P

B Q

C R

D S

31. Which term describes the growth of a plant root towards gravity?

A negative geotropism

B positive geotropism

C negative phototropism

D positive phototropism

32. Which of the following is true of a germinating seed?

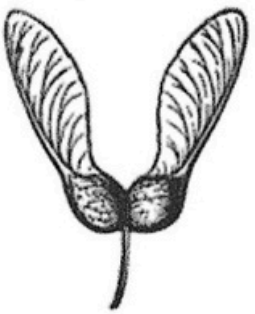
A The cotyledons protect the internal parts of a seed.

B The embryo is made of the plumule and radicle.

C The micropyle emerges first to absorb water.

D The testa contains the stored food.

33. Which of the following seeds is dispersed by mechanical explosion?



A

B

C

D

34. Which sequence correctly shows what happens for a sound to be heard?

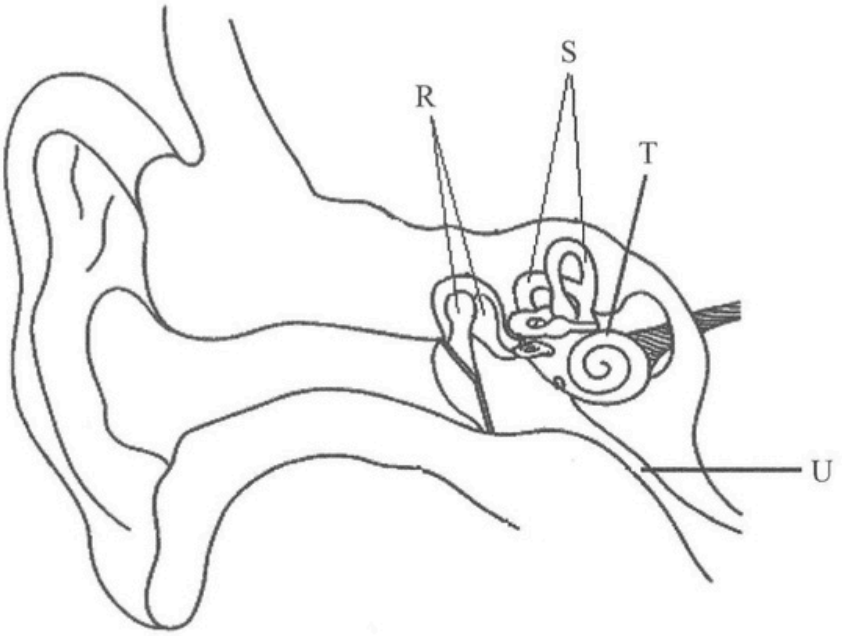
A sound waves in the air → outer ear → tympanic membrane → middle ear → round window → inner ear → brain

B sound waves in the air → oval window → inner ear → tympanic membrane → middle ear → brain

C sound waves in the air → oval window → inner ear → tympanic membrane → outer ear → brain

D sound waves → tympanic membrane → middle ear → oval window → inner ear → brain

35. The diagram shows a cross-section of the human ear.



Which labelled structure helps to amplify the vibrations in the ear?

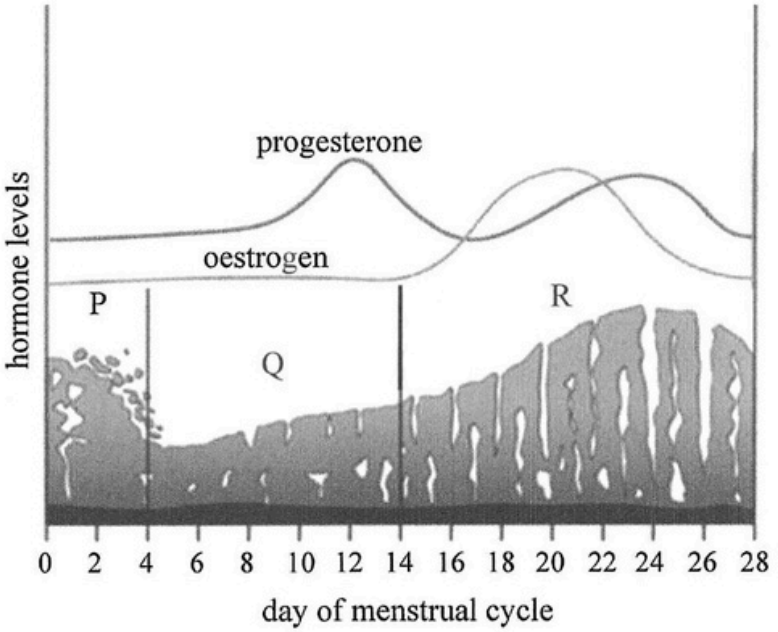
A R

B S

C T

D U

36. The diagram shows changes in hormone levels and the thickness of the uterus lining during the menstrual cycle.



Which stage of the menstrual cycle is shown by the part labelled P?

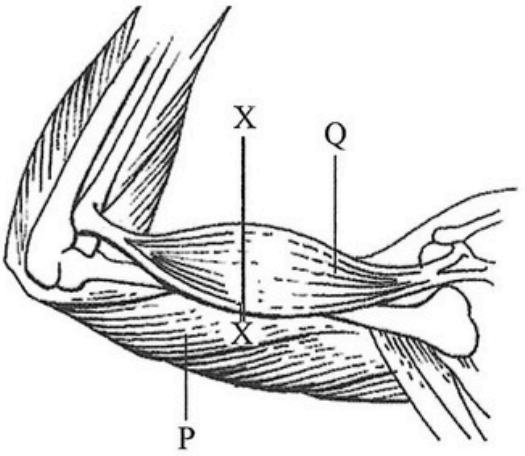
A A new lining is built up on the uterine wall and ovulation occurs.

B If a fertilised egg is not received, the uterine lining begins to break down.

C The lining of the uterus leaves the uterine wall and menstruation begins.

D The uterus is ready to receive a fertilised egg.

37. The diagram below shows the two muscles labelled P and Q in the human upper arm.



What would be the effect of severing the muscle Q across line across the line X–X?

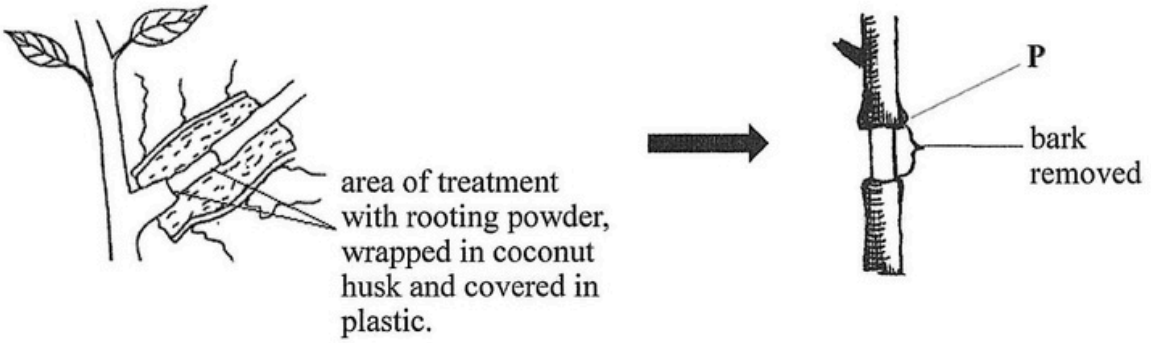
A The elbow cannot be flexed.

B The elbow cannot be extended.

C The muscle at P cannot contract.

D The muscle at P cannot relax.

The first diagram shows part of a stem of a woody plant that has had a ring of bark removed. The damaged area has been wrapped with coconut husk. The second diagram shows the appearance of the damaged area after several months. Questions 38 and 39 refer to the diagram.



38. What is the main function of the husk?

A to prevent the entry of carbon dioxide

B to prevent entry of light

C to prevent the loss of oxygen

D to prevent the loss of water

39. Which processes must have occurred to explain the changes in appearance of part **P**?

A transport of water from the leaves and translocation from the leaves

B transport of water from the leaves and translocation from the roots

C transport of water from the roots and translocation from the leaves

D transport of water from the roots and translocation from the roots

40. Which type of cell division results in the formation of haploid daughter cells from a diploid cell?

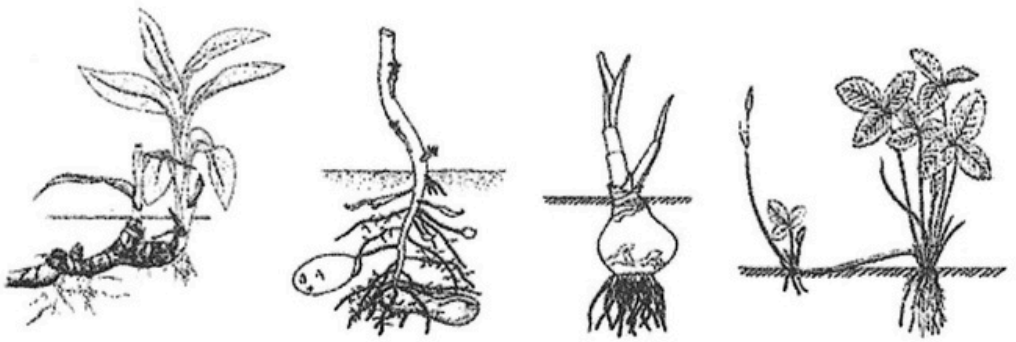
A budding

B fission

C meiosis

D mitosis

41. Which diagram shows a natural method of asexual reproduction that involves the use of a rhizome?



A B C D

42. Which hormones are present in birth control pills to prevent fertilisation?

A follicle stimulating hormone (FSH) and progesterone

B luteinizing hormone (LH) and follicle stimulating hormone (FSH)

C luteinizing hormone (LH) and oestrogen

D oestrogen and progesterone

43. The table shows the number of persons, in a section of New Providence, who used various methods of contraception between 2015 and 2018.

	2015	**2016**	**2017**	**2018**
diaphragm	320	516	616	700
condom	8000	10260	15350	20500
spermicide	859	530	400	400
birth control pill	5300	6000	6500	7500

Which factor could explains the figures for the use of condoms?

A decrease in the availability of the pill

B decrease in sexual activity

C increase in the cost of contraceptives

D increase in awareness about sexually transmitted diseases

44. What is the main function of the scrotum?

A to assist sperm cells to travel quickly into the vagina

B to allow sperm cells to develop in cooler temperatures

C to provide extra storage space for sperm cells

D to transport sperm cells from the vas deferens to the urethra

45. Which is an example of discontinuous variation within the human species?

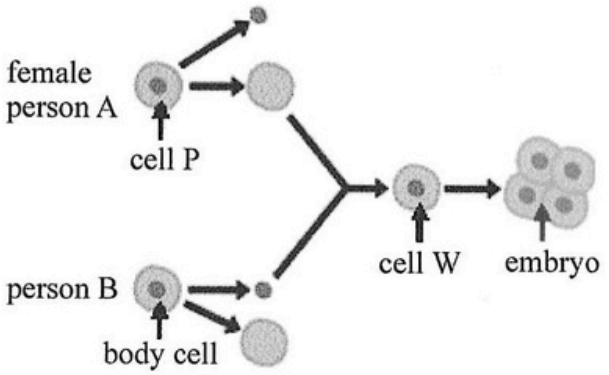
A blood group

B hair colour

C skin colour

D mass

46. The diagram shows a method that could be used in the future to produce a human.



Which method of reproduction is shown in the diagram above?

A adult cell cloning

B embryo transplant

C sexual reproduction

D tissue culture

47. Which of the following statements explains why seeds from the same fruit may be genetically different?

A Fertilisation often causes the mutation of seeds.

B Pollination causes different chromosome combinations.

C Seeds grow differently because of environmental conditions.

D The seeds are active sites of meiosis.

48. Which feature is common to both RNA and DNA molecules?

A double-stranded helix

B nitrogenous bases that include uracil

C phosphate group attached to a 5-carbon sugar

D single helix strand

49. Two black coated rabbits, heterozygous for the gene controlling coat colour were mated, and 12 offsprings were produced.

Which is the expected number of offspring in this litter with the dominant phenotype for coat colour?

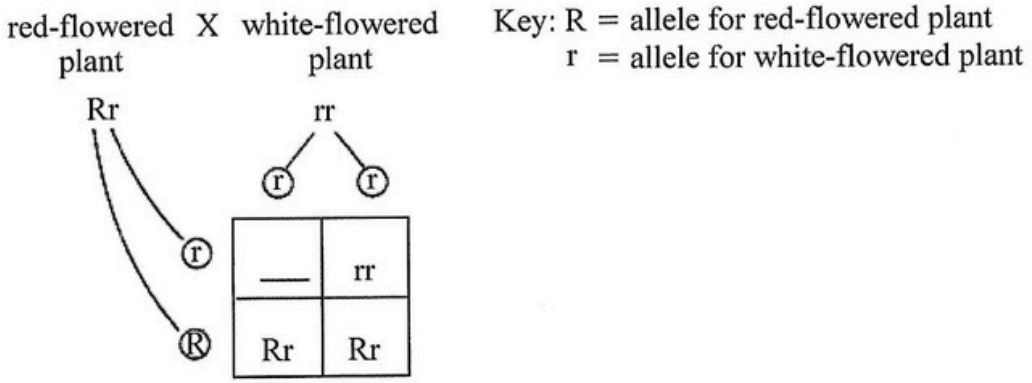
A 3

B 6

C 9

D 12

50. The Punnett square diagram shows the possible genotypes of hibiscus flowers resulting from a cross between a red-flowered hibiscus plant and a white-flowered hibiscus plant.



What is the missing genotype from the Punnett square?

A RR

B Rr

C rR

D rr

End]

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