

NAMIBIA SENIOR SECONDARY CERTIFICATE

BIOLOGY ORDINARY LEVEL

4322/1

PAPER 1 Multiple Choice

1 hour

Marks 40

2019

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.

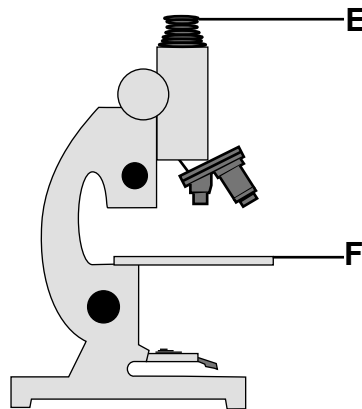
This document consists of **12** printed pages.



Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

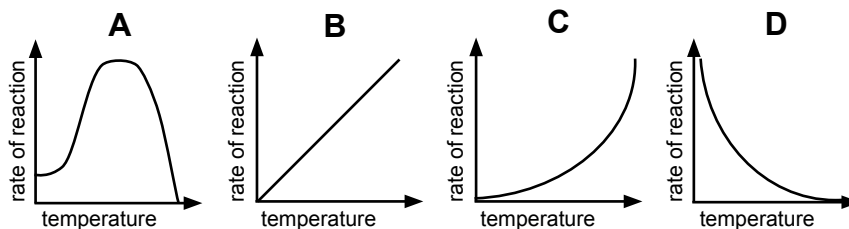
- 1 Which feature is used to classify an organism as a flowering plant?
- A** fruits with seeds
B roots with hairs
C single-celled spores
D underground stems
- 2 Which kingdom contains organisms without a nucleus in their cells?
- A** animals
B fungi
C prokaryotes
D protocists
- 3 The diagram shows a laboratory microscope.



What are the functions of the parts labelled **E** and **F**?

	E	F
A	to adjust the focus	to illuminate the object being viewed
B	to adjust the focus	to hold the slide on the stage
C	to magnify the object	to hold the slide on the stage
D	to magnify the object	to illuminate the object being viewed

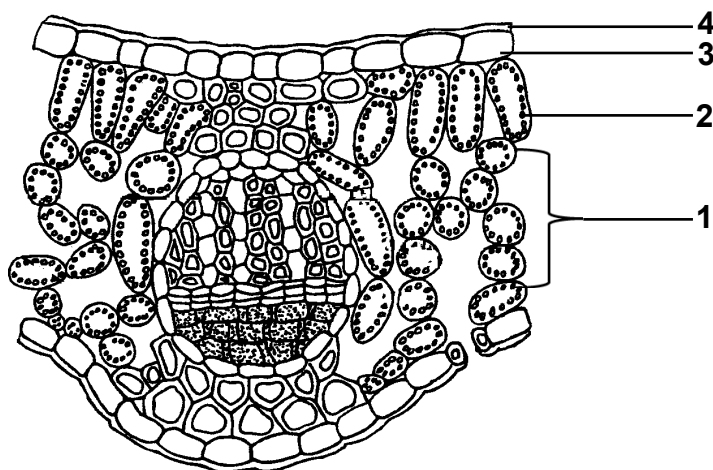
- 4 Which graph shows the effect of temperature on an enzyme-controlled reaction?



- 5 Tests were carried out on four different food samples. The results are shown in the table below. Which food contains reducing sugar only?

food sample	Benedict's	biuret	iodine
A	blue	blue	blue/black
B	blue	purple	brown
C	orange	blue	brown
D	orange	purple	blue/black

- 6 The diagram shows a section through a leaf.



In which regions does photosynthesis occur?

- A 1 and 2
 B 2 and 3
 C 3 and 4
 D 4 and 1
- 7 Which of the following is needed for chlorophyll synthesis?
 A calcium
 B iron
 C magnesium
 D nitrate
- 8 The table shows the calcium, iron, vitamin A and vitamin C content in 10 g of four different foods.

type of food 10 g	calcium/mg	iron/mg	vitamin A/ μ g	vitamin C/ μ g
bananas	0.7	0.04	3.3	1000
carrots	4.8	0.06	200.0	600
oranges	4.1	0.03	1.0	6000
spinach	7.0	0.30	95.5	4000

Which combination of foods will **most** benefit a person suffering from both night-blindness and anaemia?

- A bananas and carrots
 B bananas and oranges
 C carrots and spinach
 D oranges and spinach

9 Which two statements correctly describe the importance of water in the body?

- 1 It acts as a solvent for chemical reactions.
- 2 It converts simple sugars to starch.
- 3 It serves as a source of energy.
- 4 It transports substances around the body.

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

10 At which point in the alimentary canal is most water reabsorbed?

- A anus
- B colon
- C duodenum
- D rectum

11 During digestion, large molecules are broken into smaller molecules by which of the following?

- A bile
- B enzymes
- C peristalsis
- D teeth

12 The table shows the rates of water uptake and transpiration of a plant at different times in the morning.

time	09h00	10h00	11h00	12h00
rate of water uptake/cm ³ per hour	15	16	16	17
transpiration/cm ³ per hour	7	2	16	19

At what time will the plant show signs of wilting?

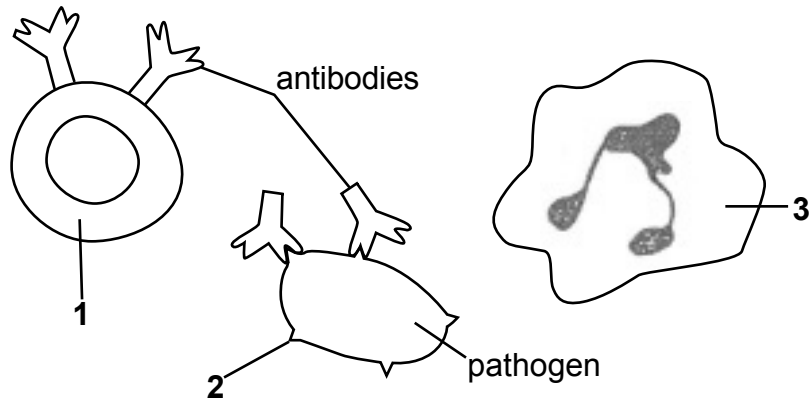
- A 09h00
- B 10h00
- C 11h00
- D 12h00

13 Which valve action results from an increase in pressure in the ventricles of the heart?

- A the closing of the semi-lunar valves
- B the closing of all heart valves
- C the opening of the bicuspid valve
- D the opening of the semi-lunar valves

- 14 The diagram shows different structures that can be found in human blood. These elements are concerned with the immune response to pathogens.

What are the structures numbered 1 to 3?

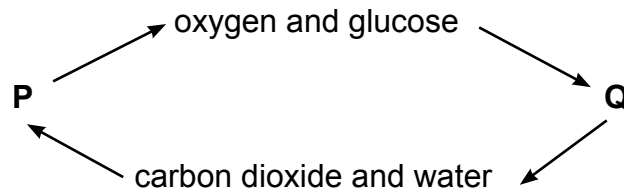


	1	2	3
A	lymphocyte	antigen	neutrophil
B	neutrophil	lymphocyte	antigen
C	platelet	neutrophil	lymphocyte
D	red blood cell	antigen	platelet

- 15 What type of immunity is provided when a patient is given a vaccination?
- A active
B passive
C resistant
D selective
- 16 Which of the following are 'end products' of anaerobic respiration in yeast?
- A alcohol and lactic acid
B alcohol, carbon dioxide and lactic acid
C carbon dioxide and alcohol
D carbon dioxide only
- 17 What happens to the depth and rate of breathing during increased physical activity?

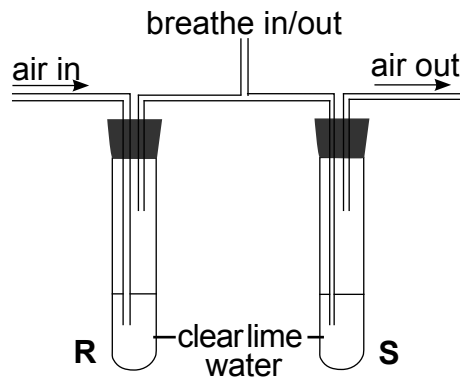
	depth	rate
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

18 Which processes are represented by **P** and **Q**?



	P	Q
A	photosynthesis	respiration
B	photosynthesis	transpiration
C	respiration	photosynthesis
D	transpiration	photosynthesis

19 The diagram shows the apparatus used to investigate the composition of inspired air and expired air.



Which row shows the appearance of **R** and **S** after a student breathes in and out through the apparatus five times?

	appearance of R	appearance of S
A	clear	clear
B	clear	cloudy
C	cloudy	clear
D	cloudy	cloudy

20 The table shows the average daily intake of different food groups by person **T** and person **U**.

food	person T/g	person U/g
carbohydrates	350	250
fat	100	100
proteins	150	250

How will the urine of person **T** compare with the urine of person **U**?

- A** The urine will contain less glucose.
- B** The urine will contain less urea.
- C** The urine will contain more glucose.
- D** The urine will contain more urea.

21 The table shows the composition of the urine of four people.

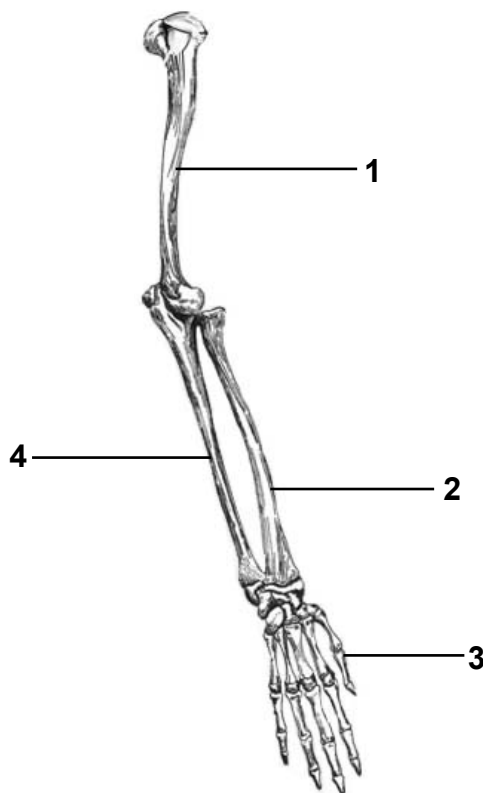
Which person is most likely to be suffering from kidney failure?

person	urea content of urine	water content of urine
A	high	low
B	high	high
C	low	low
D	low	high

22 Which of the following is a function of adrenaline?

- A decreases blood pressure
- B decrease in rate of breathing
- C increase in heart rate
- D increase in conversion of glucose into glycogen

23 The diagram shows the main bones in the human arm.

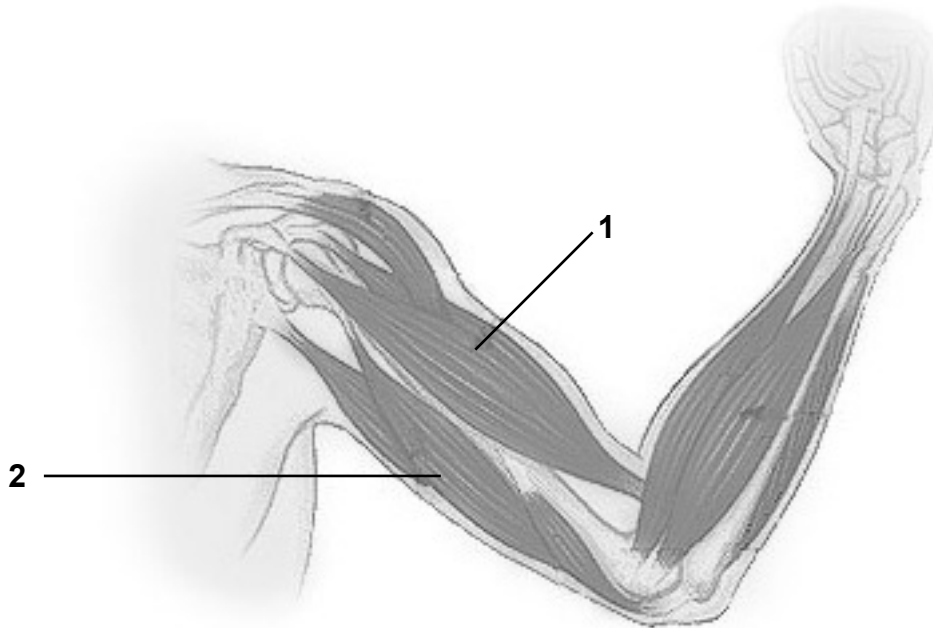


Which label lines are the humerus and ulna?

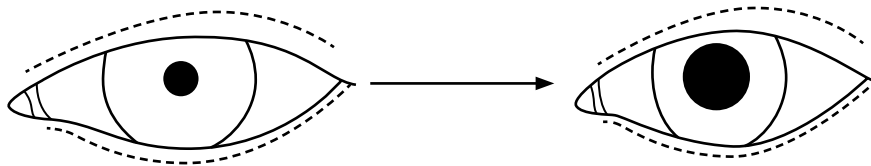
	humerus	ulna
A	1	4
B	2	3
C	3	2
D	4	1

24 The diagram shows a part of the human body.

When the arm is extended what happens to muscles 1 and 2?



- A both 1 and 2 contract
 B both 1 and 2 relax
 C 1 contracts and 2 relaxes
 D 1 relaxes and 2 contracts
- 25 The diagrams show how the size of the pupil changes as a person moves from bright light into dim light.



Which row is correct for the circular and radial muscles of the iris to bring about this change?

	circular muscle	radial muscle
A	contracts	contracts
B	contracts	relaxes
C	relaxes	contracts
D	relaxes	relaxes

- 26** Which of the following statements about the eye are correct?
1. The cornea bends light rays.
 2. The cones respond to bright light.
 3. The retina contains the 'light sensitive' cells.
 4. The sclera protects the pupil.
- A** 1, 2 and 3
B 2, 3 and 4
C 3, 4 and 1
D 3, 4 and 2
- 27** When would a person be classified as a drug addict?
- A** The person has a course of antibiotics to complete.
B The person has a habit of resisting drugs.
C The person has an irresistible urge to take the drug and increase the dose.
D The person has a terminal disease.
- 28** What is the effect of cannabis on the body?
- A** acts as a stimulant
B reduces desire to eat
C slows down reactions
D speeds up reactions
- 29** Which of the following shows the correct order in the life cycle of a plant?
- A** germination → fertilisation → pollination → seed dispersal
B germination → pollination → seed dispersal → fertilisation
C pollination → fertilisation → seed dispersal → germination
D pollination → germination → seed dispersal → fertilisation
- 30** Which statement concerning a pair of alleles for a gene controlling a single characteristic in humans is true?
- A** Both alleles come from the father.
B Both alleles come from the mother.
C One allele comes from the mother and one allele comes from the father.
D The alleles come randomly in pairs from either the mother or father.
- 31** In sheep, coat colour is controlled by a pair of alleles. Dominant allele W = white coat and recessive allele w = black coat. Two white sheep produce a black lamb.
- What must be the genotypes of the two parents?
- A** $ww \times ww$
B $Ww \times Ww$
C $WW \times ww$
D $WW \times WW$

32 A family has four children, all with different blood groups.

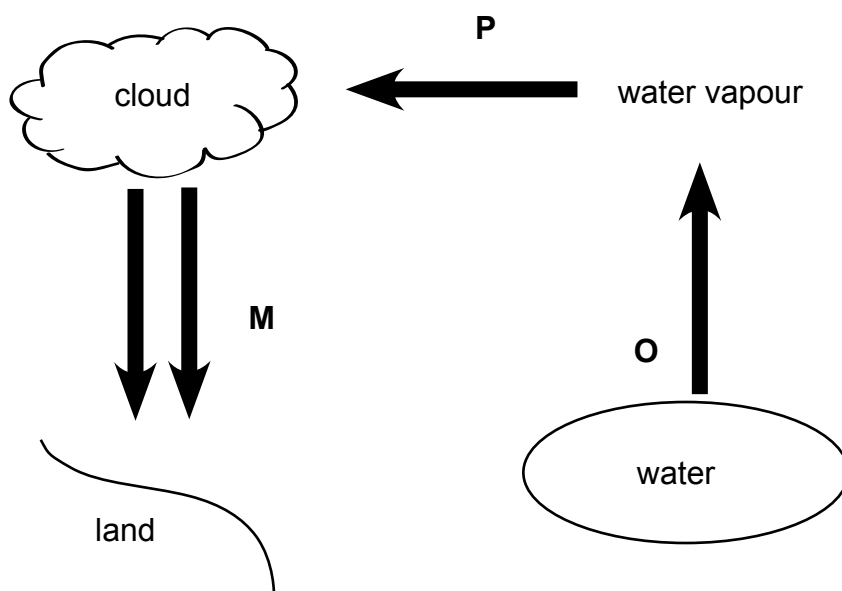
What are the phenotypes of their parents?

- A A and B
- B A and O
- C B and AB
- D B and O

33 Which of the following is **not** true about natural selection?

- A Individuals with variations suitable to their environment have shorter life spans and produce fewer offspring.
- B Living things tend to produce more offspring than can survive.
- C Suitable variations in a population tend to be passed on while unsuitable variations in a population are not.
- D Variations in a population exist and those variations are inherited.

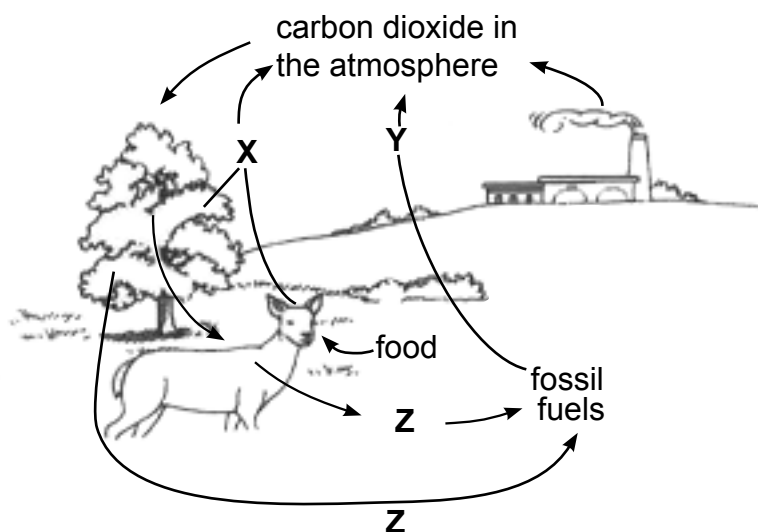
34 The diagram shows the water cycle.



At which points are evaporation, condensation and precipitation occurring?

	evaporation	condensation	precipitation
A	O	M	P
B	O	P	M
C	P	O	M
D	P	M	O

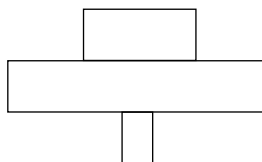
35 The diagram shows the carbon cycle.



What important processes are occurring at X, Y and Z?

	X	Y	Z
A	combustion	photosynthesis	respiration
B	combustion	respiration	death and decomposition
C	respiration	death and decomposition	combustion
D	respiration	combustion	death and decomposition

36 The diagram shows a pyramid of numbers.



Which of the following could produce this pyramid?

- A birds feeding on caterpillars on a tree
 - B lions feeding on a herd of zebras in African grassland
 - C foxes catching and eating rabbits in a field
 - D some fish feeding on plankton
- 37 Weeds are growing amongst a crop.
What should be used to remove the weeds?
- A artificial fertiliser
 - B herbicide
 - C nitrates
 - D pesticide

- 38** What is the **main** effect of deforestation on the planet?
- A** decrease in river height
 - B** increase in the human population
 - C** increased carbon dioxide concentration
 - D** increased number of grasses
- 39** Which term describes the maintenance of the environment and natural resources?
- A** biodiversity
 - B** conservation
 - C** deforestation
 - D** recycling
- 40** Which one of the following cannot be recycled?
- A** paper
 - B** fossil fuels
 - C** plastics
 - D** sewage