

NAMIBIA SENIOR SECONDARY CERTIFICATE

BIOLOGY ORDINARY LEVEL

4322/1

PAPER 1 Multiple Choice

1 hour

Marks 40

2013

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

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Make sure that you receive the multiple choice answer sheet with your **Candidate Number** on it.
- Write in soft pencil.
- Answer **all** questions.
- 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.
- Any rough working should be done in this booklet.
- All questions in this paper carry equal marks.
- You may use a non-programmable calculator.

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



Republic of Namibia
MINISTRY OF EDUCATION

- 1 All living things exchange gases with their environment.

Animals take in oxygen and breath out carbon dioxide. As this occurs, energy is released in the animal cells.

Which characteristic of living organisms is described in the paragraph above?

- A excretion
- B growth
- C nutrition
- D respiration

- 2 Which feature is characteristic of viruses?

- A have a cell wall
- B have a protein coat
- C have double stranded DNA
- D have mitochondria

- 3 The diagnostic features of an organism are unicellular with a definite nucleus in the cytoplasm.

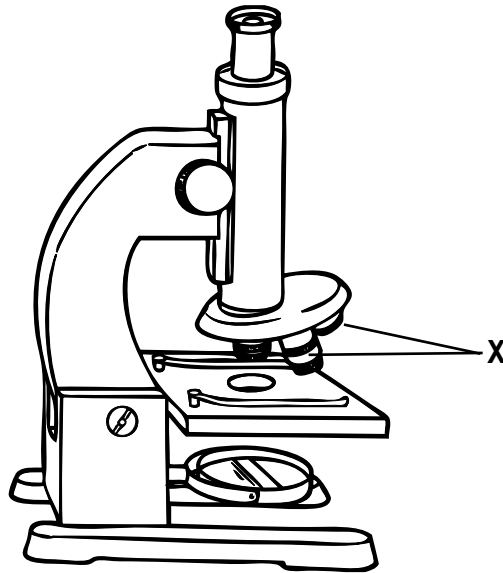
To which kingdom does the organism belong?

- A animals
- B fungi
- C prokaryotes
- D protocista

- 4 What function does a muscle tissue perform?

- A absorption
- B contraction
- C digestion
- D transportation

- 5 The diagram shows a modern compound light microscope.



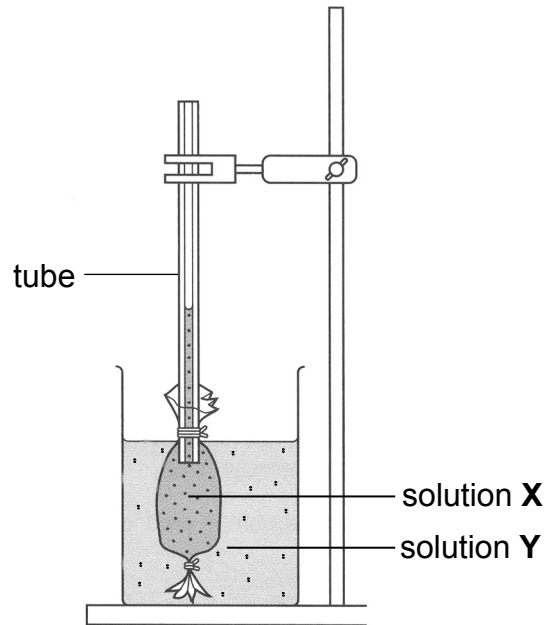
What is the function of part X?

- A adjust the opening through which light passes
 - B brings object into focus
 - C for magnification of the object
 - D to reflect light
- 6 Which is the correct definition of an organ?
- A A group of different cells working together to perform a particular function.
 - B A group of similar cells working together to perform a particular function.
 - C A group of different tissues working together to perform a particular function.
 - D A group of the same tissues working together to perform a particular function.
- 7 The cell membrane of red blood cells will allow water, oxygen, carbon dioxide and glucose to pass through. Other substances are not allowed to enter.

Which feature of the cell membrane is illustrated by this?

- A fully permeable
- B impermeable
- C partially permeable
- D perforated

- 8 The diagram shows an experiment to demonstrate osmosis.



What describes the changes that would happen after 30 minutes?

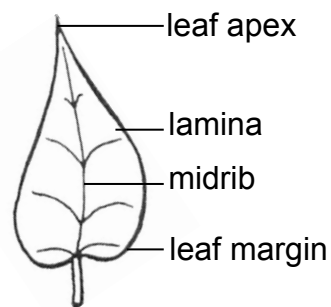
- A Solution X has a higher water potential than solution Y and the level in the tube falls.
 - B Solution X has a higher water potential than solution Y and the level in the tube rises.
 - C Solution Y has a higher water potential than solution X and the level in the tube falls.
 - D Solution Y has a higher water potential than solution X and the level in the tube rises.
- 9 Which process is responsible for the uptake of glucose from the villi of the small intestine into the blood stream?
- A active transport
 - B diffusion
 - C digestion
 - D osmosis

10 The table shows the quantities of four nutrients in 100 g of four foods.

Which food would help prevent scurvy?

food	vitamin A (mg)	iron (mg)	calcium (mg)	vitamin C (mg)
A	10.00	0.7	42	45
B	0.75	0.5	33	80
C	0.03	5.0	35	40
D	0.05	0.8	67	50

11 The diagram shows the external structure of a leaf.



Which contains the vascular bundles?

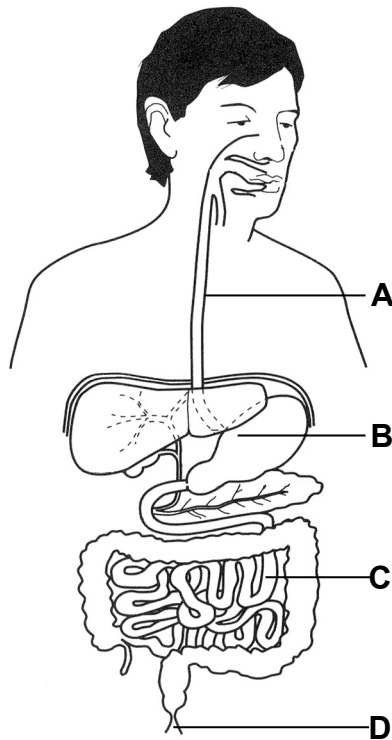
- A lamina
- B leaf apex
- C leaf margin
- D midrib

12 Which food substance will give a positive result when tested with Benedict's solution?

- A fat
- B glucose
- C protein
- D starch

13 A simplified human alimentary canal is given below.

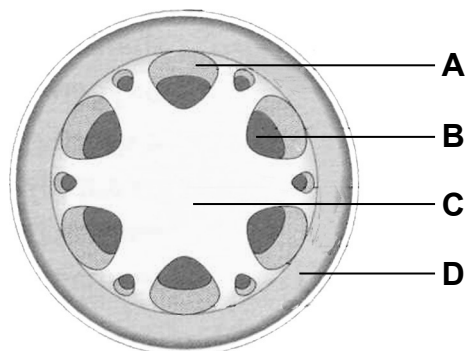
Where does egestion take place?



14 Which secretes both digestive enzymes and hormones?

- A gall bladder
- B liver
- C mouth
- D pancreas

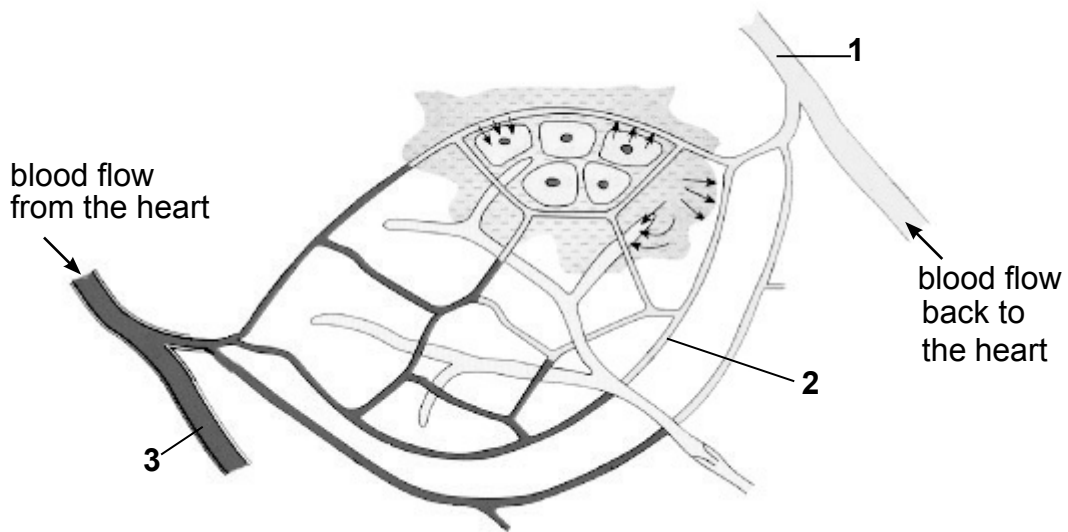
15 The diagram shows a section through the stem of a green plant.



Which tissue transports sugar to different parts of the plant?

16 Blood vessels are structurally adapted to carry out their function.

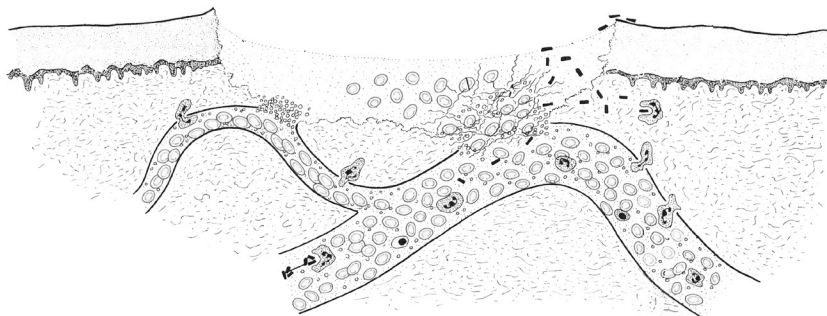
The diagram shows three types of blood vessels found in the human circulatory system.



How are blood vessels **1**, **2** and **3** structurally adapted to carry out their function?

	1	2	3
A	has valves	single layer of cells	more elastic fibres
B	highly permeable	large lumen	single layer of cells
C	narrow lumen	has valves	highly permeable
D	single layer of cells	more elastic fibres	has valves

17 The diagram shows red blood cells trapped by fibres.



Which blood protein is converted into these fibres?

- A** fibrinogen
- B** glucagon
- C** haemoglobin
- D** insulin

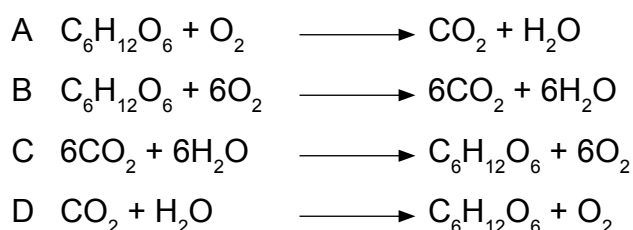
- 18 During a vaccination programme, all Namibians were given the Sabin vaccine, a liquid containing weakened polio viruses.

How can this help vaccinated individuals to become immune to polio?

- A It causes a mild form of the disease.
 - B It increases phagocytosis.
 - C It prevents viral infections.
 - D It promotes production of antibodies.
- 19 In which structure of the cell does respiration take place?

- A chloroplast
- B mitochondria
- C nucleus
- D vacuole

- 20 Which balanced equation represents respiration?



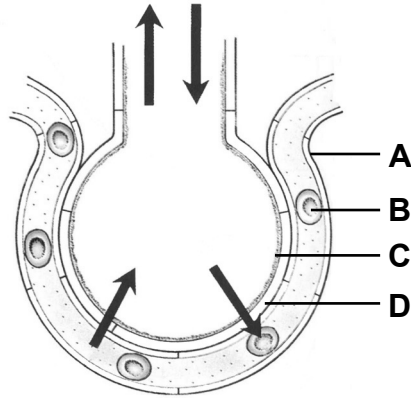
- 21 An athlete is running a 100 metre race. The following changes take place in the athlete's body during the race.

- 1 increased availability of oxygen to muscles
- 2 increased breathing rate
- 3 increased carbon dioxide concentration in the blood
- 4 muscular activity produces carbon dioxide

Which is the correct order?

	first → last			
A	1	2	3	4
B	2	4	3	1
C	3	1	2	4
D	4	3	2	1

22 The diagram shows part of the respiratory system of a mammal.



Which label is necessary for dissolving of oxygen from the air?

23 Which component of cigarette smoke reduces the oxygen carrying capacity of haemoglobin in blood?

- A carbon dioxide
- B carbon monoxide
- C nicotine
- D tar

24 What substances are found in the urine of a healthy human?

	salts	glucose	urea
A	✓	x	✓
B	✓	✓	x
C	x	x	x
D	✓	✓	✓

25 Mary and her friends were all bare – footed and were playing in the school grounds. Mary stepped on a large thorn and soon afterwards jumped up and screamed in pain. Her foot started bleeding since it was injured by the thorn.

What is the reflex action?

- A a bleeding foot
- B jumping up
- C stepping on the thorn
- D screaming in pain

26 The abuse of drugs has negative effects on the human body.

Which organ is permanently damaged by the abuse of alcohol?

- A ear
- B large intestine
- C liver
- D pancreas

27 Drugs cause both personal and social problems that arise from drug abuse.

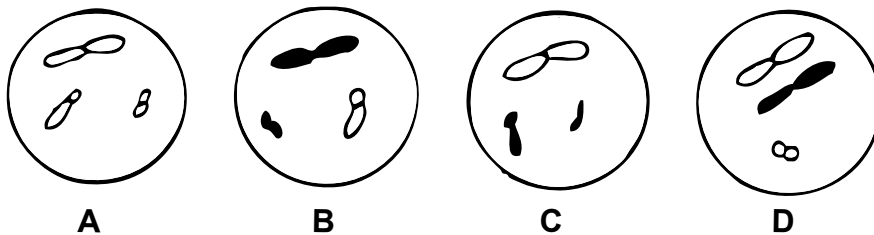
Which is a personal problem?

- A driving under the influence of alcohol
- B hearing things that doesn't exist
- C selling drugs to other people
- D stealing to pay for the drug

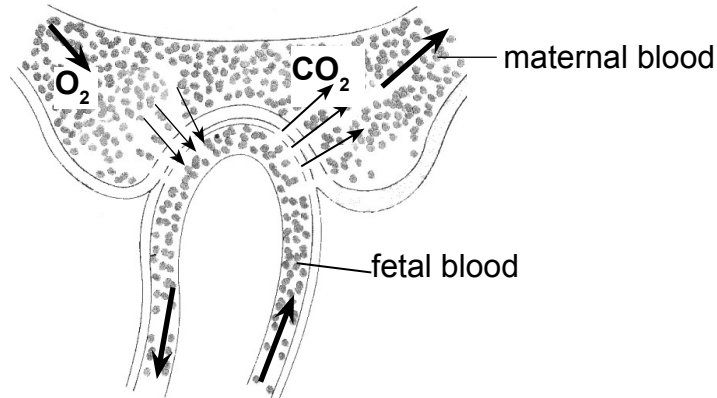
28 The diagram below represents the nucleus of a body cell of an organism.



Which one of the following diagrams does **not** represent a possible gametic nucleus produced by the organism?

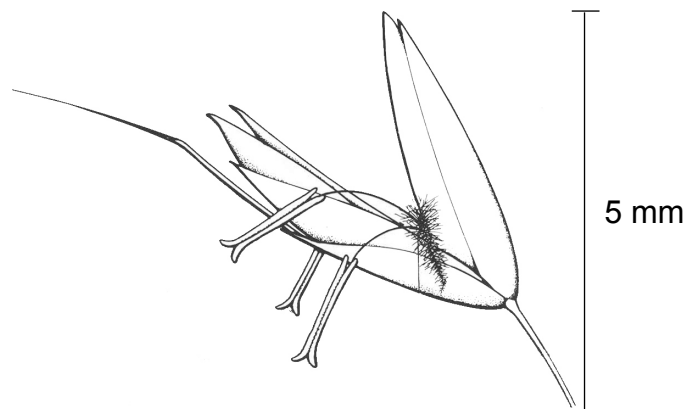


- 29 The diagram shows the exchange of substances between fetal and maternal blood in the placenta.



Why does oxygen move from maternal blood to fetal blood?

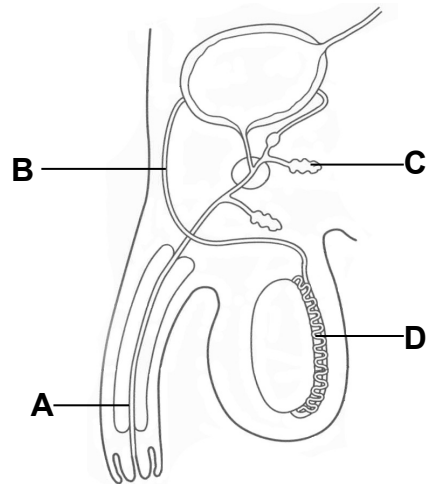
- A less blood pressure in fetal blood than in maternal blood
 - B less blood pressure in maternal blood than in fetal blood
 - C more CO_2 in fetal blood than in maternal blood
 - D more O_2 in maternal blood than in fetal blood
- 30 Which statement is both an advantage and disadvantage of asexual reproduction in a plant species?
- A all offspring genetically identical
 - B no pollinators required
 - C only one parent required
 - D species crowds out competitors
- 31 The diagram shows a flower.



Which feature enables this flower to be pollinated by wind?

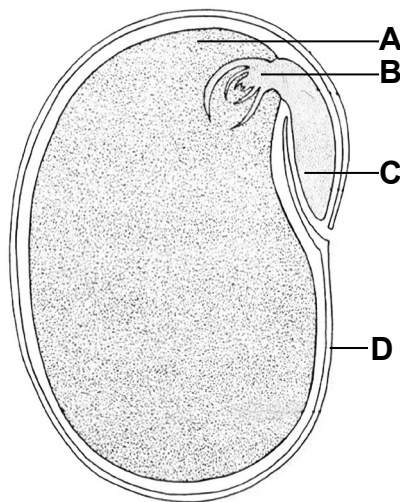
- A conspicuous flower
- B feathery stigma
- C pollen varies in size
- D produces nectar

32 The diagram shows parts of the male reproductive system.



Which labelled structure would be cut during surgical birth control?

33 In which structure of the seed, is food for the growing embryo stored?



34 Which method of measuring growth in organisms gives the amount of living material in an organism?

- A dry mass
- B height
- C volume
- D wet mass

35 A heterozygous type A blood group man and a homozygous type B blood group woman had one child.

What is the probability that the child is blood type O?

- A 0%
- B 25%
- C 75%
- D 100%

- 36** A book contained the sentence “only the best adapted organisms survive and reproduce”.

Which biological process is being described in this sentence?

- A** artificial selection
- B** evolution
- C** mutation
- D** natural selection

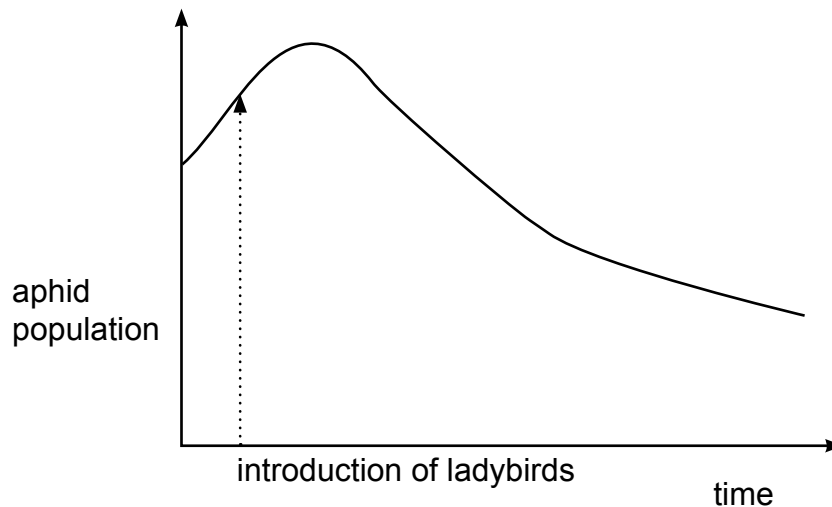
- 37** A ladybird feeds on an aphid.

At which trophic level is the ladybird?

- A** primary consumer
- B** producer
- C** secondary consumer
- D** tertiary consumer

- 38** The graph shows a population of aphids, before and after a ladybird population has been introduced into the habitat of the aphids.

Ladybirds feed on aphids.

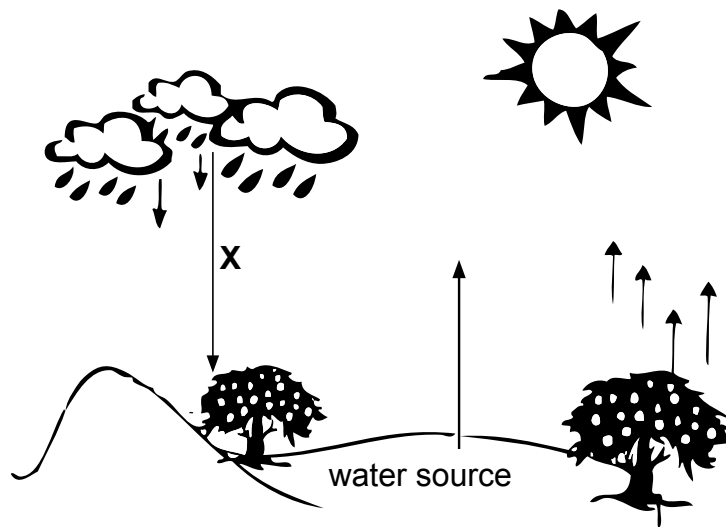


Which factor caused the aphid population to decrease?

- A** decrease in disease
- B** decrease in pesticide use
- C** increase in food supply
- D** increase in predation

39 The diagram shows the water cycle.

What process is happening at X?



- A condensation
- B evaporation
- C precipitation
- D transpiration

40 Which is **not** an effect of irrigation?

- A Crops can be grown during dry seasons.
- B Crops can be grown in low rainfall areas.
- C It can lead to soil erosion if not carefully managed.
- D It increases soil fertility, producing high crop yields.

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