Candidate Name | Centre Number | Candidate Number

# ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

**General Certificate of Education Ordinary Level**

## COMBINED SCIENCE 4003/1

**PAPER 1** Multiple Choice

**JUNE 2020 SESSION** 1 hour

Additional materials:
Multiple Choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended.)
Calculator (Optional)

### INSTRUCTIONS TO CANDIDATES

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

Write your name, centre number and candidate number on the answer sheet in the spaces provided unless this has already been done for you.

Read very carefully the instructions on the answer sheet.

### INFORMATION FOR CANDIDATES

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.

There are **forty** questions in 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 soft pencil on the separate answer sheet provided.

**This question paper consists of 16 printed pages.**

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Which one is a physical component of an ecosystem?

**A** air

**B** fungi

**C** humus

**D** bacteria

What is the function of the vacuole in a plant cell?

**A** stores salts and sugars

**B** controls the activities of the cell

**C** produces food by photosynthesis

**D** controls movement of substances in and out of the cell

The equation for anaerobic respiration in muscle cells is given below:

$$\text{glucose} \longrightarrow \text{energy} + \mathbf{Q}$$

What is **Q**?

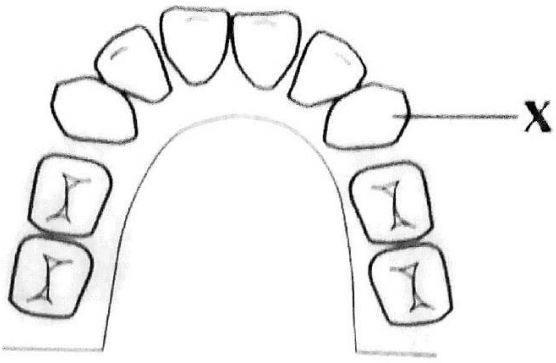
**A** carbon dioxide

**B** lactic acid

**C** alcohol

**D** water

**4.** The diagram shows part of teeth on the upper jaw of a human being.




The tooth labelled **X** is

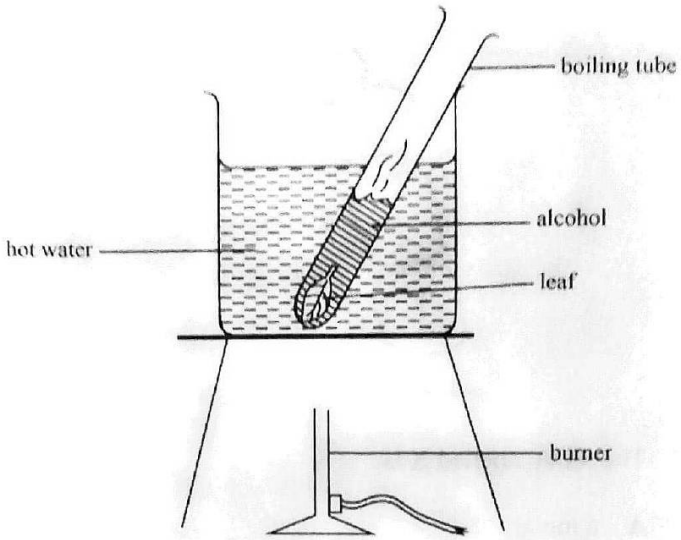
**A** a molar.

**B** a canine.

**C** an incisor.

**D** a premolar.

5. The diagram shows a stage in the process of testing a leaf for starch.




Why is the stage shown important?

**A** to soften the leaf

**B** to make the leaf brittle

**C** to kill and open up the leaf cells

**D** to remove chlorophyll from the leaf

6. An experiment on germination was carried out by planting 80 seeds and 50 seeds germinated.

What was the percentage germination?

**A** $\frac{30}{80} \times \frac{100}{1}$

**B** $\frac{50}{80} \times \frac{100}{1}$

**C** $\frac{30}{100} \times \frac{80}{1}$

**D** $\frac{50}{100} \times \frac{80}{1}$

7. Where does gaseous exchange occur?

**A** in the bronchiole

**B** in the bronchus

**C** in the trachea

**D** in the alveoli

8. Which one is **not** a function carried out by the blood?

**A** defence

**B** excretion

**C** transport

**D** homeostasis

9. Why is transpiration good for a plant?

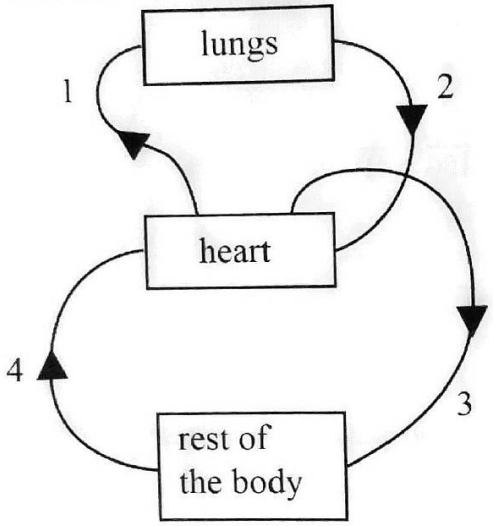
**A** It helps the plant to take up water and mineral salts.

**B** It helps to transport sugars around the plant.

**C** It maintains a balance of starch.

**D** It keeps the plant cells turgid.

10. The diagram shows the double blood circulation system in humans.




Which blood vessels are thick walled?

**A** 1 and 2

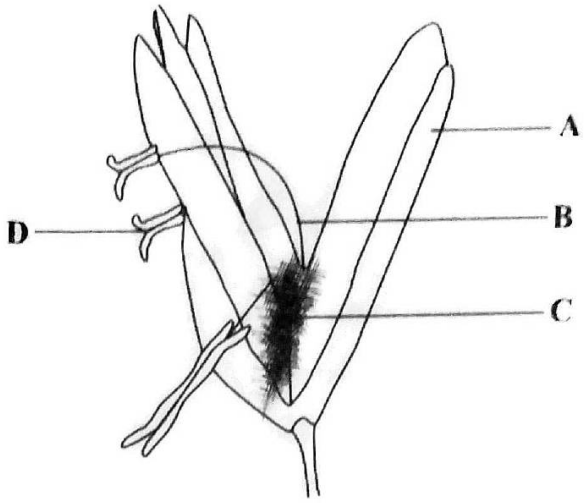
**B** 1 and 3

**C** 2 and 4

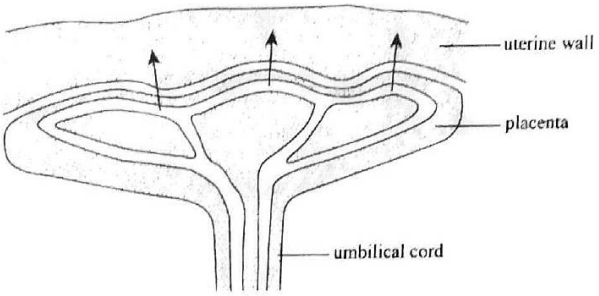
**D** 3 and 4

**11.** The diagram shows the structure of a wind pollinated flower.

Which part produces pollen grains?




**12.** The diagram shows the transfer of a substance between the placenta and the uterine wall in a pregnant woman.




The substance carried in the direction of the arrows is

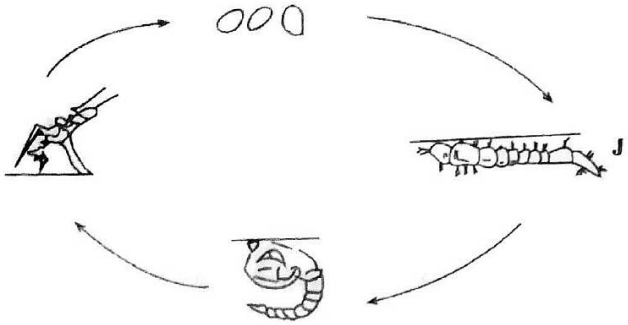
**A** urea.

**B** oxygen.

**C** glucose.

**D** an antibody.

13. The diagram shows the life cycle of the anopheles mosquito.




Which method can effectively control the mosquito at stage **J**?

**A** spraying with insecticide

**B** using mosquito repellents

**C** covering water ponds with oil

**D** cutting grass around the home

14. Active immunity may be developed by

**A** suffering and recovering from a disease.

**B** breast feeding for at least six months.

**C** avoiding contact with sick people.

**D** being injected with antibodies.

15. The Avogadro's number is the number of

**A** particles in one mole of a substance.

**B** protons in one mole of a substance.

**C** electrons in one mole of a substance.

**D** neutrons in one mole of a substance.

16. The two types of sub-atomic particles found in the nucleus are the

**A** electron and proton.

**B** electron and neutron.

**C** proton and neutron.

**D** nucleon and electron.

17. The symbol $^{18}_{8}O$ represents an atom of oxygen.

How many neutrons does the atom have?

**A** 8

**B** 10

**C** 18

**D** 26

18. What is the relative molecular mass of water($H_2O$)?
[Ar of H is 1. Ar of O is 16]

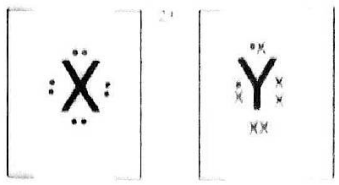
**A** 14

**B** 17

**C** 18

**D** 32

**19.** The diagram shows the type of bonding in a compound, XY.



**XY** has

**A** hydrogen bonding.

**B** metallic bonding.

**C** covalent bonding.

**D** ionic bonding.

**20.** Which product is formed when a metal reacts with air?

**A** a salt

**B** an oxide

**C** a carbonate

**D** a hydroxide

**21.** The best method of separating a mixture of liquids of different boiling points is

**A** filtration.

**B** evaporation.

**C** simple distillation.

**D** fractional distillation.

22. A solution has a pH of 6.
The solution is a

**A** strong acid.

**B** weak acid.

**C** strong base.

**D** weak base.

23. A neutralisation reaction occurs when

**A** a salt only is formed.

**B** water only is formed.

**C** oxidation only occurs.

**D** water and a salt are formed.

24. The production of ammonia requires

**A** pressure of 200 atm to 300 atm.

**B** temperature of 200 °C to 250 °C.

**C** vanadium (V) oxide catalyst.

**D** sulphur dioxide and oxygen.

25. What type of a reaction occurs when carbon monoxide reacts with iron (III) oxide?

**A** oxidation only

**B** reduction only

**C** decomposition only

**D** oxidation and reduction

**26.** Which fuel is a hydrocarbon?

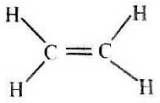
**A** hydrogen

**B** coal gas

**C** butane

**D** ethanol

**27.** The diagram shows an organic molecule.




The molecule is

**A** ethane.

**B** ethene.

**C** ethanol.

**D** propene.

**28.** A possible unit of density is

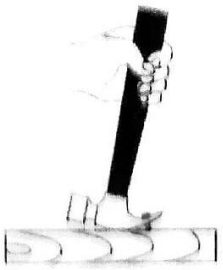
**A** $cm^3/g$.

**B** $cm/g^3$.

**C** $g/cm^3$.

**D** $g^3/cm$.

10. The diagram shows a simple machine.



Which type of a simple machine is shown in the diagram?

**A** gear

**B** lever

**C** pulley

**D** inclined plane

11. An effort of 150 N raises a load of 600 N through a distance of 2 m. The effort moves a distance of 10 m.

What is the efficiency of the system?

**A** 20%

**B** 25%

**C** 75%

**D** 80%

12. Hydraulic systems are based on the fact that

**A** liquids cannot be compressed.

**B** liquids flow cannot be stopped.

**C** pressure in liquids increases with depth.

**D** liquids transmit equal forces in all directions.

32. Convection takes place in

**A** gases and solids.

**B** gases and liquids.

**C** liquids and solids.

**D** gases, liquids and solids.

33. What is the purpose of the curved surface of a solar cooker?

**A** to absorb maximum energy from the sun

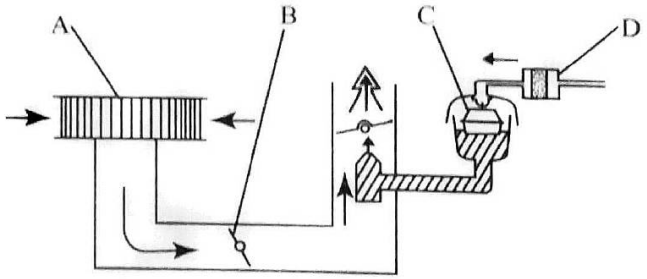
**B** to focus energy from the sun to the pot

**C** to reflect heat away from the pot

**D** to absorb heat from the pot

34. The diagram shows a carburettor.

Which part controls the amount of air that mixes with petrol?




35. Air, with a pressure of 400 Pa, acts on a wall of area 5 $m^2$.

What is the force exerted by the air?

**A** 80 N

**B** 395 N

**C** 405 N

**D** 2000 N

36. The energy change that happens to information before transmission in a cell phone is

**A** sound to light.

**B** light to sound.

**C** electrical to sound.

**D** sound to electrical.

37. An electrical appliance with double insulation does **not** have

**A** a neutral wire.

**B** an earth wire.

**C** a live wire.

**D** insulation.

38. Which material is used to make a core of an electromagnet?

**A** iron

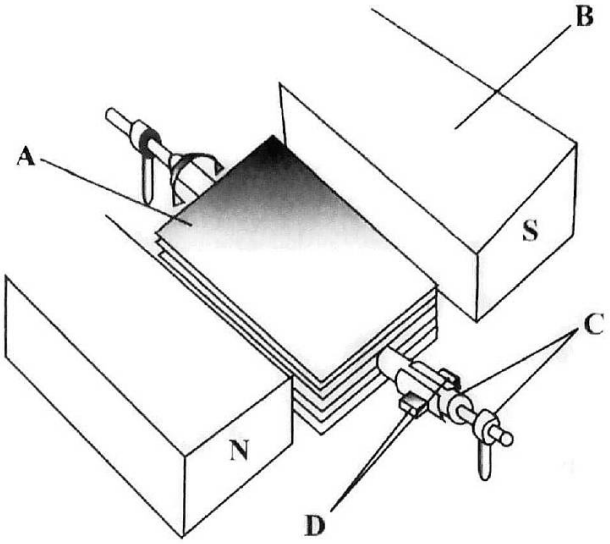
**B** steel

**C** copper

**D** aluminium

**39.** The diagram shows an alternating current generator.

Which component allows current to change direction?




**40.** Which graph shows the relationship between voltage (V) and current (I) in a pure metal?

