



**ZIMBABWE SCHOOL EXAMINATIONS COUNCIL**  
General Certificate of Education Ordinary Level

**COMBINED SCIENCE**

**4003/1**

PAPER 1 Multiple Choice

**JUNE 2019 SESSION**

1 hour

Additional materials:

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

**TIME** 1 hour

**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.

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.

**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.

---

**This question paper consists of 20 printed pages.**

Copyright: Zimbabwe School Examinations Council, J2019.

1. Which nutrient provides energy?

A carbohydrate

B vitamin C

C fibre

D iron

2. What is the function of the gall bladder?

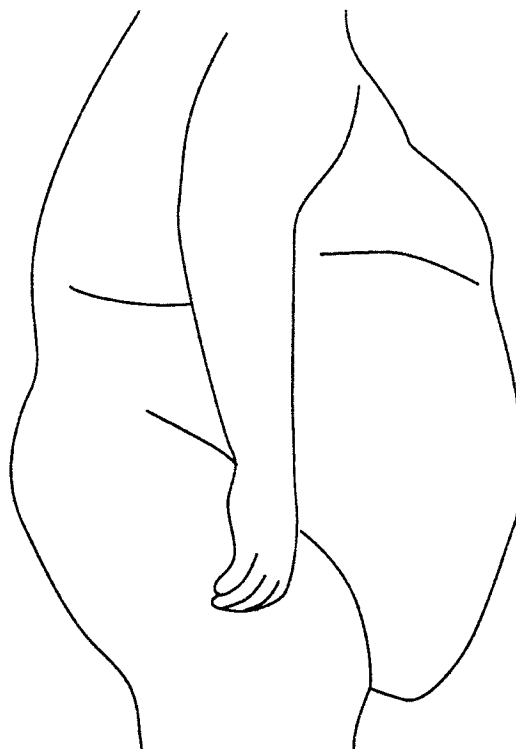
A stores bile

B stores urine

C produces bile

D produces urea

3. The photograph shows a condition due to malnutrition.



What is the name of the condition?

- A obesity
- B diabetes
- C kwashiorkor
- D anorexia nervosa

4. Benedict's solution was added to a food sample. The mixture was heated. A brick-red colour was observed.

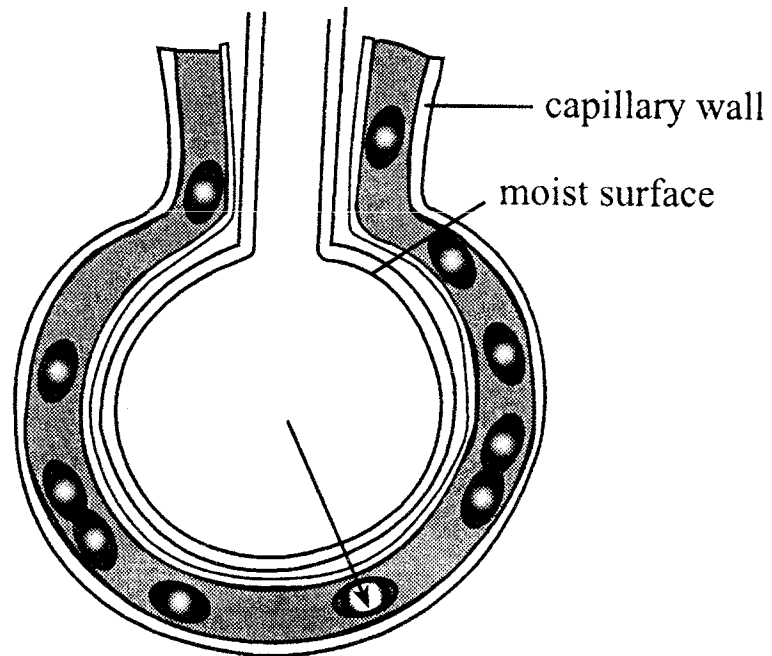
Which food component was present?

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

5. During anaerobic respiration,

- A oxygen is used.
- B alcohol is produced.
- C lactic acid is produced in plant cells.
- D a large amount of energy is released.

6. The diagram shows the structure of an alveolus.

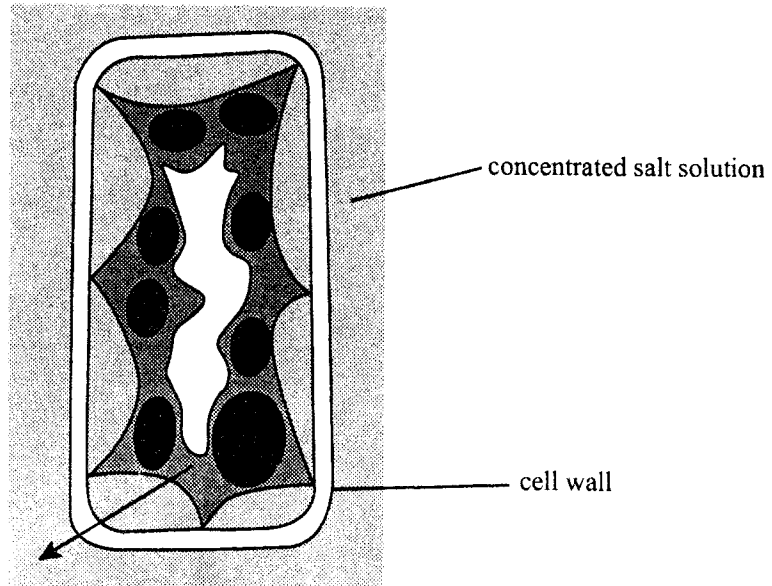


Which gas moves in the direction of the arrow?

- A carbon monoxide
- B carbon dioxide
- C nitrogen
- D oxygen

7.

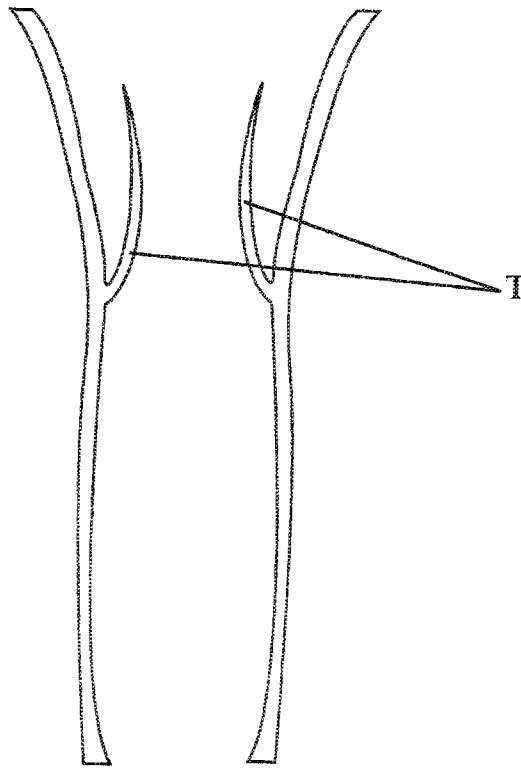
The diagram shows a plant cell after it has been placed in a concentrated salt solution.



Which substance moves in the direction of the arrow?

- A salt
- B ions
- C water
- D cytoplasm

8. The diagram shows the internal section of a blood vessel.



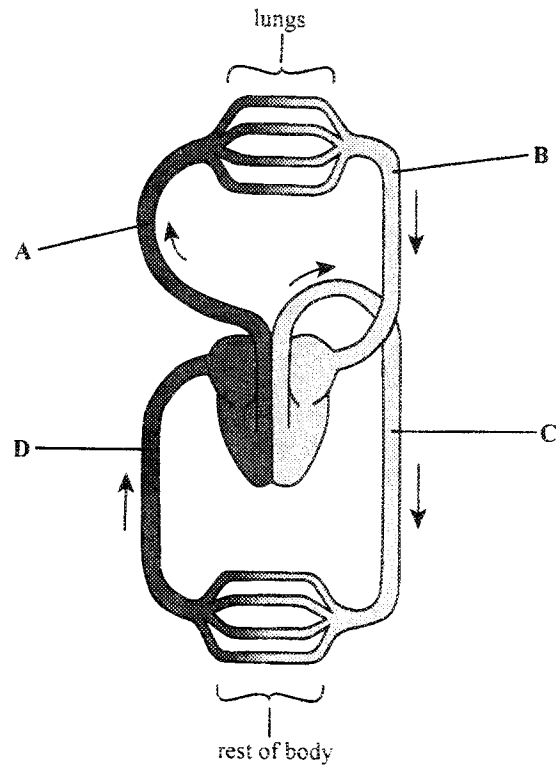
What is the function of **T**?

- A** to increase blood flow towards the heart
- B** to increase the lumen of the blood vessel
- C** to push blood towards the heart
- D** to prevent back flow of blood

9.

The diagram shows the human circulatory system.

Which blood vessel, **A**, **B**, **C** or **D**, has blood under highest pressure?



10.

A woman starts her menstrual flow on the 2nd of April.

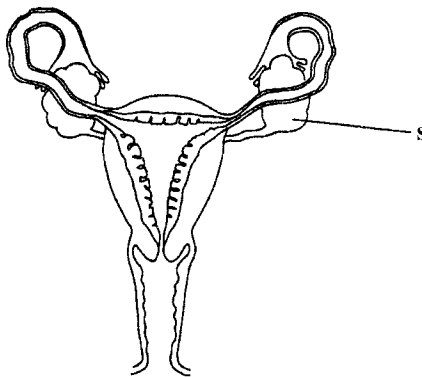
When is she expected to ovulate?

- A 7 April
- B 12 April
- C 16 April
- D 2 May

11. Which part of the male reproductive system stores sperms?

- A prostate gland
- B sperm duct
- C epididymis
- D testis

12. The diagram shows the reproductive system of a woman.



What is part S?

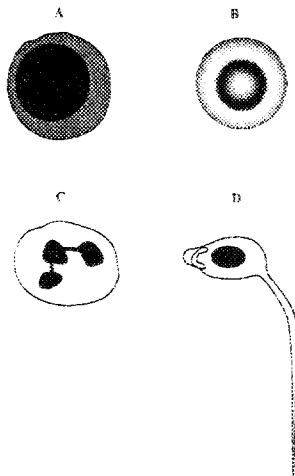
- A cervix
- B ovary
- C uterus
- D oviduct



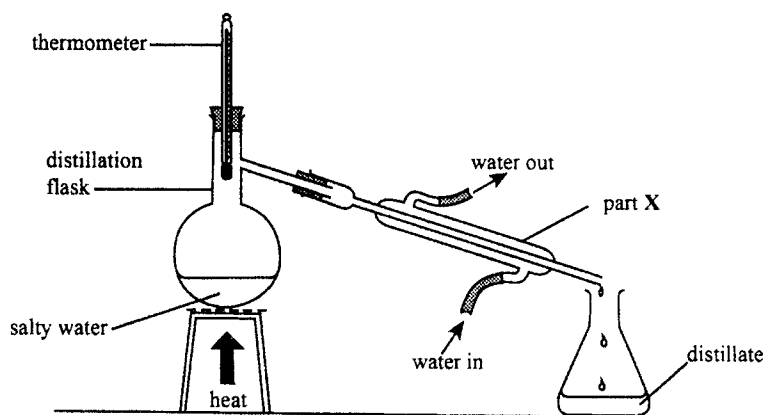
13. Which disease is spread by drinking contaminated water?

- A ebola
- B typhoid
- C malaria
- D chancroid

14. The diagram shows some specialised human cells.  
Which cell, **A**, **B**, **C** or **D**, is the target of HIV?



15. The diagram shows a simple distillation apparatus.



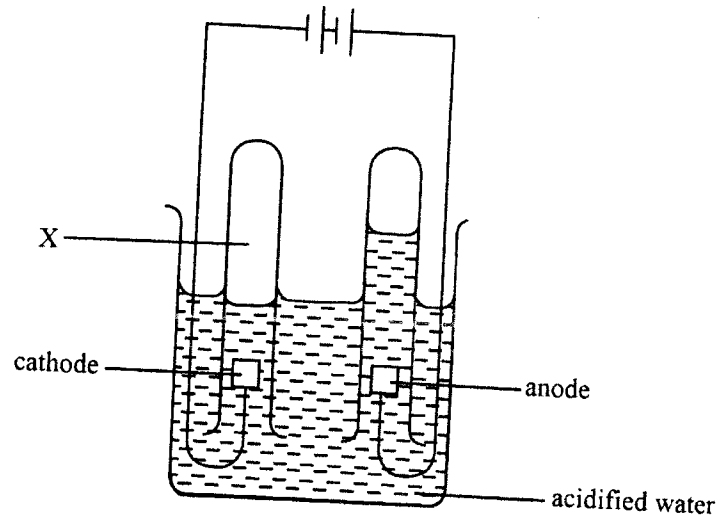
What happens in part X?

- A the distillate is warmed
  - B vapour is converted to liquid
  - C vapour is directed into the container
  - D salt and the distillate are separated
16. Element X has an electronic configuration of 2, 8, 2.  
What is the charge of an ion of X?
- A  $X^{2+}$
  - B  $X^{2-}$
  - C  $X^{6+}$
  - D  $X^{6-}$

17. Which statement is true about the atom  ${}_{17}^{37}\text{X}$ ?
- A It has 37 neutrons.
  - B It has 37 protons.
  - C It has 20 protons.
  - D It has 20 neutrons.
18. Which formula is used to calculate the concentration of a solution?
- A number of moles X volume
  - B mass X volume
  - C  $\frac{\text{number of moles}}{\text{volume}}$
  - D  $\frac{\text{volume}}{\text{mass}}$
19. Which one is a property of a molten ionic compound?
- A It is an electrolyte.
  - B It is insoluble in water.
  - C It has a low melting point.
  - D It is a non conductor of electricity.

20. Chlorine gas is used in
- A food preservation.
  - B electric light bulbs.
  - C soap making.
  - D water purification.
21. The reaction between sodium hydroxide and hydrochloric acid produces a salt and
- A water.
  - B a base.
  - C an acid.
  - D hydrogen.
22. Iron, copper, zinc and magnesium are all metals.  
Which one is the least reactive?
- A magnesium
  - B copper
  - C zinc
  - D iron

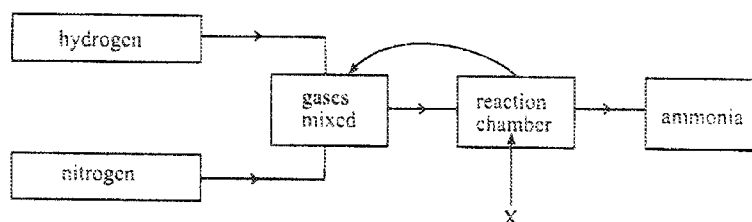
23. The diagram shows the electrolysis of water.



What is gas **X**?

- A oxygen
  - B chlorine
  - C nitrogen
  - D hydrogen
24. Which process is prevented by galvanising?
- A decomposition
  - B neutralisation
  - C reduction
  - D rusting

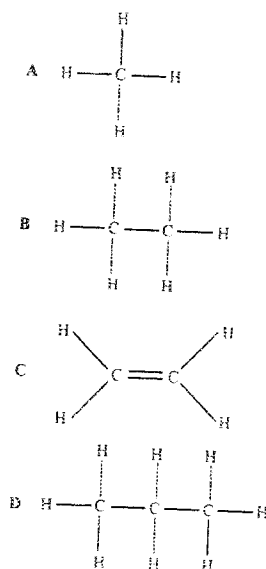
25. The diagram shows stages in the manufacture of ammonia.



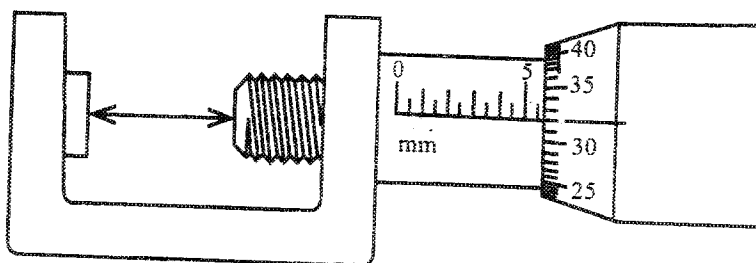
What is the pressure required at X?

- A 8 – 10 atm
  - B 100 – 150 atm
  - C 200 – 300 atm
  - D 450 – 500 atm
26. Iron is extracted from its ore in the blast furnace by the process of
- A oxidation.
  - B reduction.
  - C electrolysis.
  - D neutralisation.

27. Which one is the correct structural formula of ethane?



28. What is the reading shown by the micrometer screw gauge?



- A 5.50 mm  
 B 5.32 mm  
 C 5.82 mm  
 D 6.32 mm

S. S.

29. What is the unit of force?

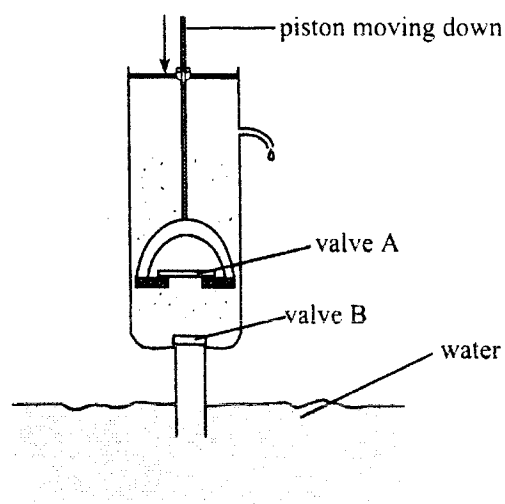
- A watt
- B joule
- C ampere
- D newton

30. A load of 900 N is raised 1 m by an effort of 300 N along an inclined plane. The inclined plane is 4 m long.

What is the efficiency of the inclined plane?

- A 25%
- B 33%
- C 67%
- D 75%

31. The diagram shows a lift pump.



What happens to the valves during the downward stroke?



- A valve A opens, valve B closes
- B valve B opens, valve A closes
- C valves A and B open
- D valves A and B close

32. Solids transfer heat by

- A convection.
- B absorption.
- C conduction.
- D radiation.

33. The tubes inside solar heating panels use the sun's heat energy to warm water. Why are the tubes painted black?

- A The black colour is a bad emitter of heat.
- B The black colour is a bad conductor of heat.
- C The black colour is a good absorber of heat.
- D The black colour is a good reflector of heat.

34. Which energy conversion takes place in a thermal power generator?

- A chemical  $\longrightarrow$  kinetic  $\longrightarrow$  electrical
- B chemical  $\longrightarrow$  heat  $\longrightarrow$  kinetic  $\longrightarrow$  electrical
- C gravitational potential  $\longrightarrow$  kinetic  $\longrightarrow$  electrical
- D gravitational potential  $\longrightarrow$  heat  $\longrightarrow$  kinetic  $\longrightarrow$  electrical

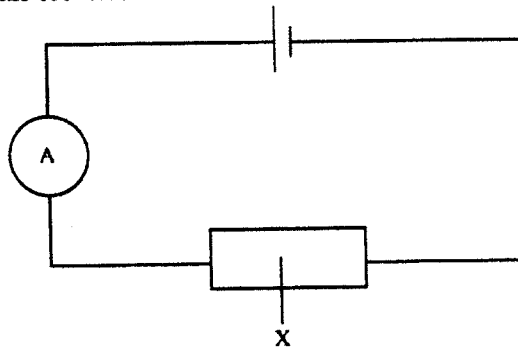
35. The speed of an electric motor can be increased by

- A using a thinner wire.
- B reducing the size of current.
- C increasing the number of turns on the coil.
- D reversing the direction of the magnetic field.

36. Messages are sent through cellphones in the form of

- A heat waves.
- B longitudinal waves.
- C electrostatic waves.
- D electromagnetic waves.

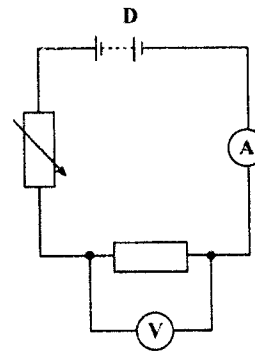
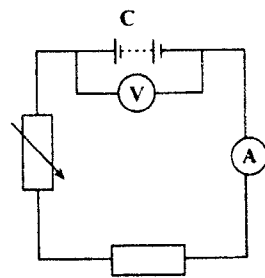
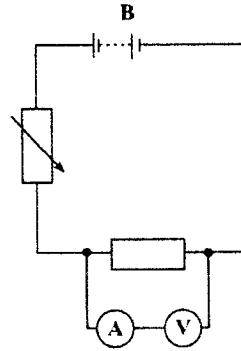
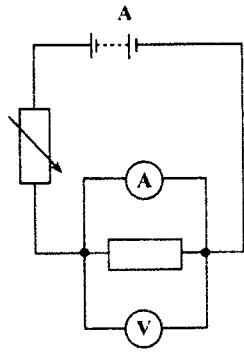
37. The diagram shows an electric circuit.



What is component X?

- A fuse
- B switch
- C resistor
- D ammeter

38. Which circuit, **A**, **B**, **C** or **D**, is used to verify Ohm's law?



39. What is the power of a lamp rated 12 V, 2 A?

- A** 24 W  
**B** 14 W  
**C** 10 W  
**D** 6 W

$$P = IV$$

$$= 2 \times 12$$

40. What might cause an electric shock?
- A touching electrical appliances with wet hands
  - B overheating of cables for various reasons
  - C using thick electrical wires
  - D connecting an earth wire