ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

COMBINED SCIENCE 4003/1

PAPER 1 Multiple Choice

NOVEMBER 2021 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.

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.

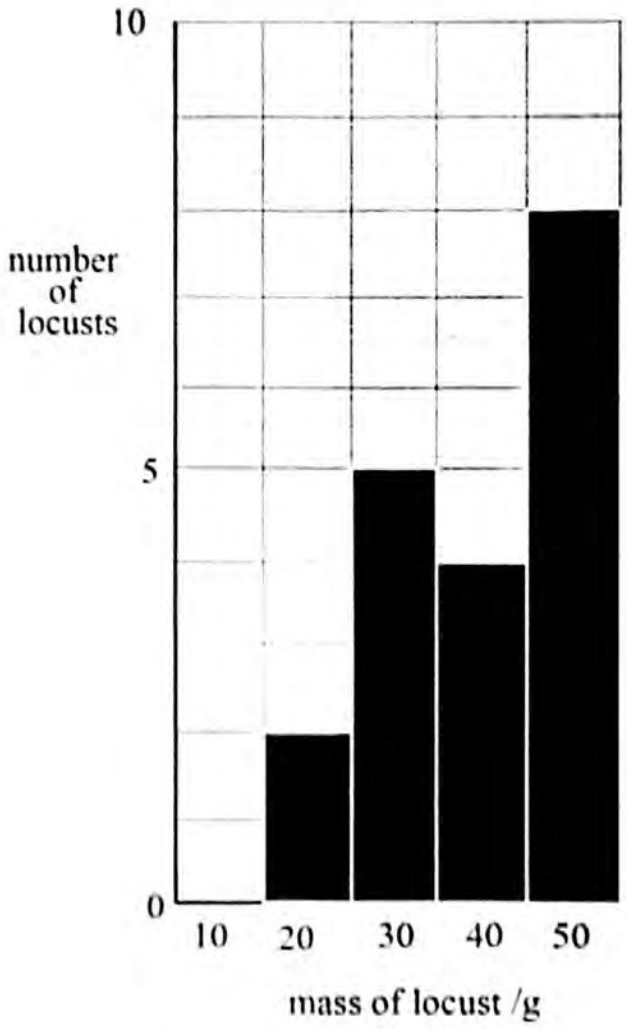
Read very carefully the instructions on the answer sheet.

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 12 printed pages.

1. The bar graph shows the variation in mass for a swarm of locusts.

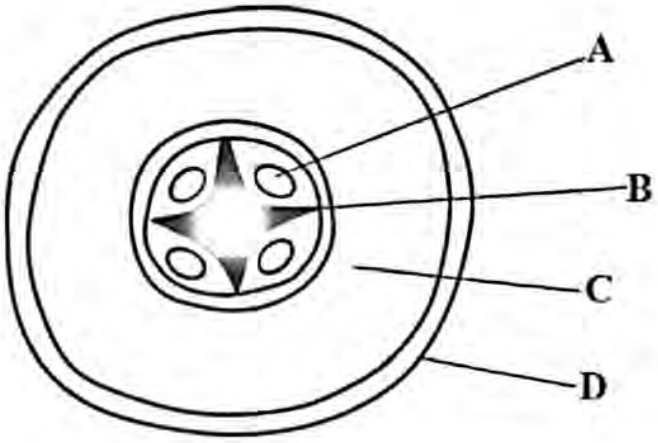


What is the total number of locusts?

A 2
B 8
C 19
D 50

2. The diagram shows a section through a plant root.

Which tissue, **A, B, C or D**, transports water?



3. Osmosis is the movement of water molecules from their region of

A high concentration to low concentration through a fully permeable membrane.
B low concentration to high concentration through a fully permeable membrane.
C high concentration to low concentration through a selectively permeable membrane.
D low concentration to high concentration through a selectively permeable membrane.

4. What is the difference between green plants and animals?

A animals respire but plants do not
B plants respire but animals do not
C animals manufacture their own food but plants do not
D plants manufacture their own food but animals do not

5. Which are the products of photosynthesis?

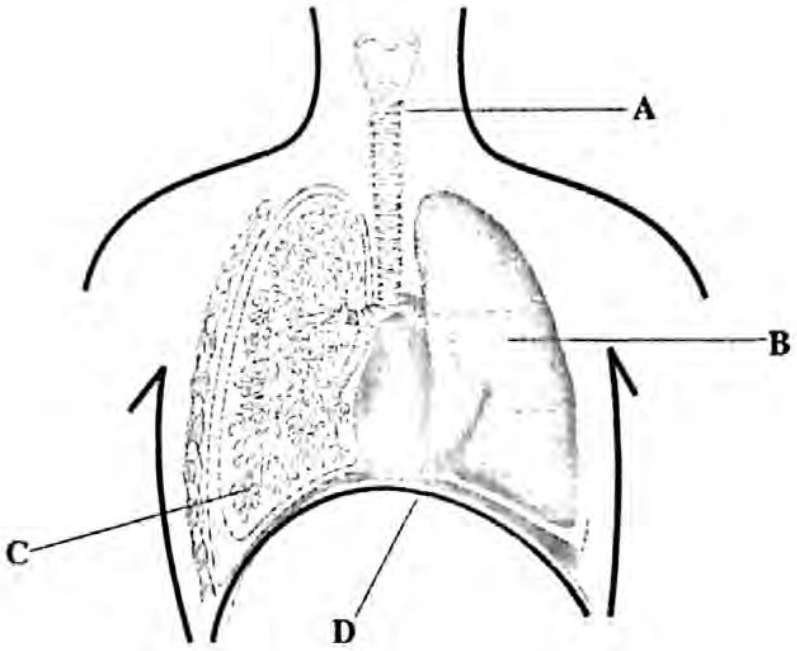
A oxygen and water
B glucose and oxygen
C carbon dioxide and water
D glucose and carbon dioxide

6. What is produced when proteins are digested?

A amino acids
B fatty acids
C glycerol
D maltose

7. The diagram shows the human respiratory system.

Which part, **A, B, C or D,** is the alveolus?

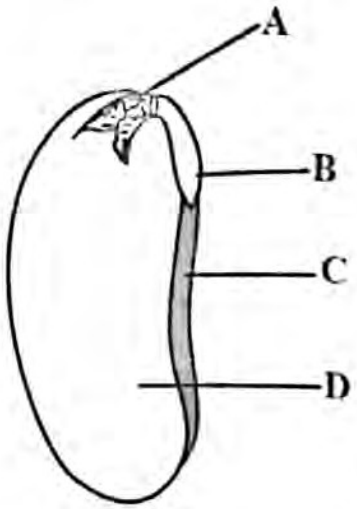


8. Which component of blood carries dissolved nutrients?

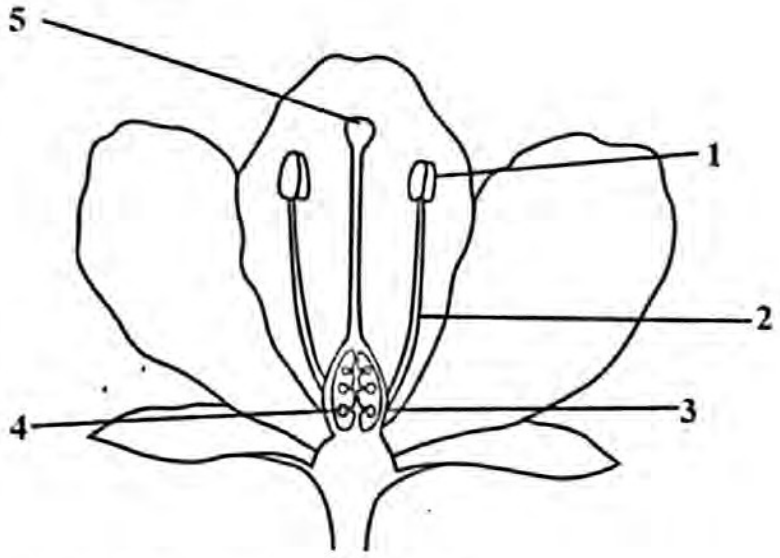
A plasma
B platelets
C red blood cells
D white blood cells

9. The diagram shows a bean seed.

Which part, **A, B, C or D**, stores food?



10. The diagram shows a flower.



Which parts of the flower make up the stamen?

A 1 and 2
B 3 and 4
C 3 and 5
D 1 and 5

11. Personal hygiene involves

A covering one's food.
B brushing one's teeth.
C cleaning one's room daily.
D keeping active through exercise.

12. Which one is **not** an advantage of biodiversity in a natural ecosystem?

A interdependence
B more disease spreading
C wide variety of food
D self sustenance of an ecosystem

13. Which organ produces sperms?

A the testis
B the penis
C the epididymis
D the prostate gland

14. Which stage of the mosquito life cycle is controlled by spraying insecticides?

A egg
B pupa
C larva
D adult

15. Which one is an application of filtration?

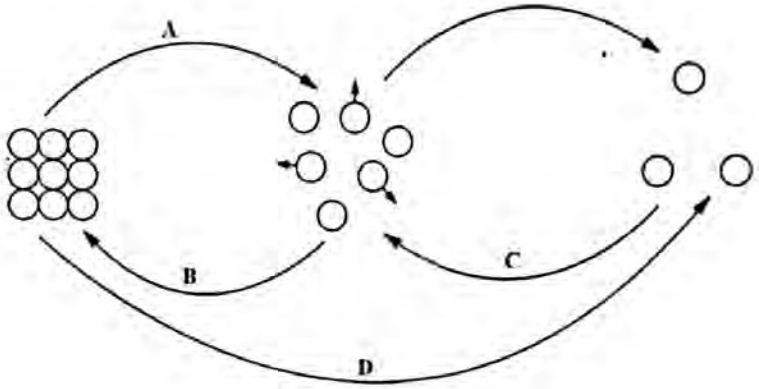
A grain separation
B salting peanuts
C treatment of water
D formation of sugar crystals

16. Which characteristic increases when more salt is dissolved in a fixed volume of water?

A solubility
B concentration
C volume of solvent
D colour of solvent

17. The diagram shows the changes of state.

Which change of state, **A, B, C or D,** occurs when iodine crystals are heated?



18. Magnesium and calcium are in Group II of the Periodic Table.

They have the same number of

A protons.
B neutrons.
C electron shells.
D valency electrons.

19. What is electrolysis?

A breaking down of an ionic compound using electricity
B breaking down of a covalent compound using electricity
C breaking down of an ionic compound using heat
D breaking down of a covalent compound using heat

20. The reaction between sodium and hydrochloric acid produces a salt and

A hydrogen.
B oxygen.
C chlorine.
D water.

21. Iron rusts in the presence of moisture and

A argon.
B oxygen.
C nitrogen.
D hydrogen.

22. Zinc oxide and sulphuric acid react according to the equation:

$$ZnO + H_2SO_4 \rightarrow ZnSO_4 + H_2O$$

What type of reaction is shown by the equation?

A addition
B condensation
C elimination
D neutralisation

23. Which one is a use of sulphuric acid?

A manufacture of ammonia
B nitric acid production
C manufacture of household cleaners
D cleaning materials before electroplating

24. Which substance is reacted with sodium hydroxide to form soap?

A water
B fatty acids
C sodium chloride
D amino acids

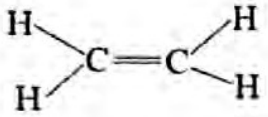
25. Which one is an equation for the production of biogas?

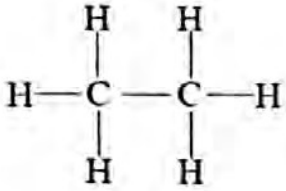
A methane + carbon dioxide $\xrightarrow{fermentation}$ organic waste
B carbon dioxide + water + energy $\xrightarrow{fermentation}$ organic waste
C organic waste $\xrightarrow{fermentaiton}$ methane + carbon dioxide
D organic waste $\xrightarrow{fermentation}$ carbon dioxide + water + energy

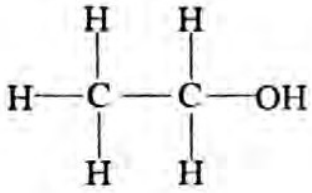
26. Which one is **not** an effect of burning fuels?

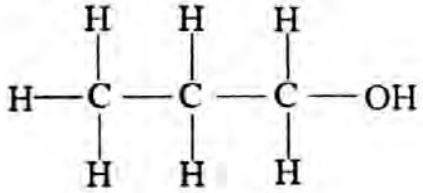
A afforestation
B pollution
C acid rain
D global warming

27. Which molecular formula represents ethanol?

A 

B 

C 

D 

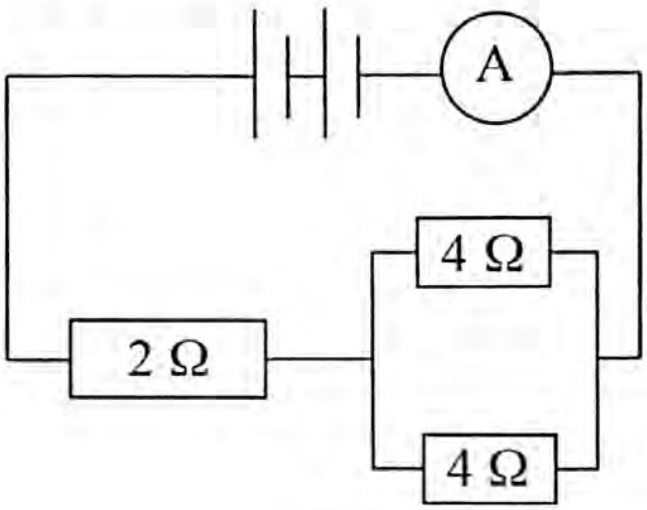
28. A metre has

A 10 mm.
B 100 mm.
C 1 000 mm.
D 10 000 mm.

29. How can overheating of cables in a circuit be prevented?

A by using thicker insulations on the wires
B by not switching off a circuit with wet hands
C by using correct wire ratings
D by using thinner wires

30. The diagram shows an electric circuit.



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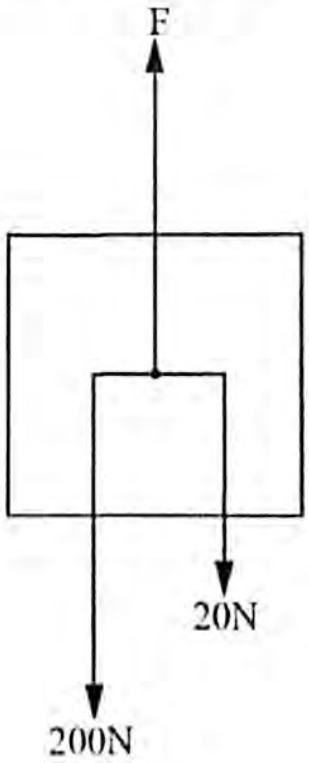
What is the total resistance in the circuit?

A 2 Ω
B 4 Ω
C 8 Ω
D 10 Ω

31. Three forces act on a box as shown in the diagram.



What is the least force required to pull the box in the direction of force F?

A 21 N
B 180 N
C 200 N
D 221 N

32. Which energy changes occur when a stone falls from the top of a mountain to the ground?

A kinetic ⟶ gravitational potential ⟶ sound
B gravitational potential ⟶ kinetic ⟶ sound
C kinetic ⟶ sound ⟶ gravitational potential
D gravitational potential ⟶ sound ⟶ kinetic

33. Which one is **not** an effect of a force on an object?

A change in speed
B change in shape
C change in mass
D change in acceleration

34. What happens when a charged polythene ball is brought near an uncharged polythene ball?

A there is no effect
B the balls attract
C the balls repel
D the balls first repel and then attract

35. Moment of a force is defined as

A force x perpendicular distance from pivot.
B force ÷ perpendicular distance from pivot.
C mass x perpendicular distance from pivot.
D mass ÷ perpendicular distance from pivot.

36. In which direction does a freely suspended bar magnet rest?

A East - West
B North - South
C North - West
D South - East

37. What is current?

A the flow of atoms from positive to negative
B the flow of atoms from negative to positive
C the flow of charges from positive to negative
D the flow of charges from negative to positive

38. Which factor does **not** influence the reliability of wireless phone communication?

A physical obstacles
B interference or noise
C size of cell phone
D proximity of phone to base station

39. The unit cost of electricity is 20 cents. A family pays $50.00 per month for electricity.

How many kWh of electricity does the family use per month?

A 2.5 kWh
B 10.0 kWh
C 250.0 kWh
D 1000.0 kWh

40. Heat travels in solids through

A conduction.
B convection.
C radiation.
D reflection.