



Cambridge IGCSE™ (9–1)

CO-ORDINATED SCIENCES

0973/12

Paper 1 Multiple Choice (Core)

May/June 2025

45 minutes

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

- There are **forty** questions on 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 multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- Take the weight of 1.0 kg to be 9.8 N (acceleration of free fall = 9.8 m/s^2).

INFORMATION

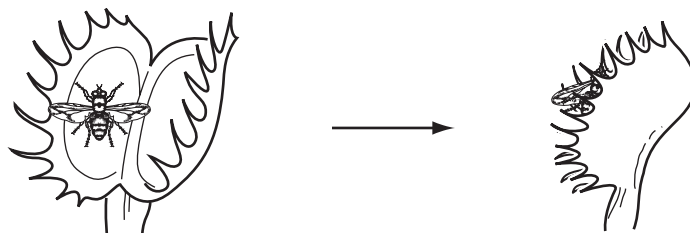
- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.
- The Periodic Table is printed in the question paper.

This document has **16** pages.



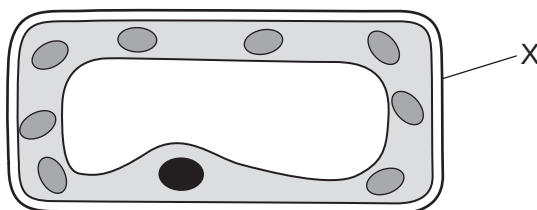
2

- 1 The Venus fly trap is a plant that catches insects.



Which characteristic of living organisms is shown in the diagram?

- A excretion
 - B growth
 - C reproduction
 - D sensitivity
- 2 The diagram shows a plant cell.

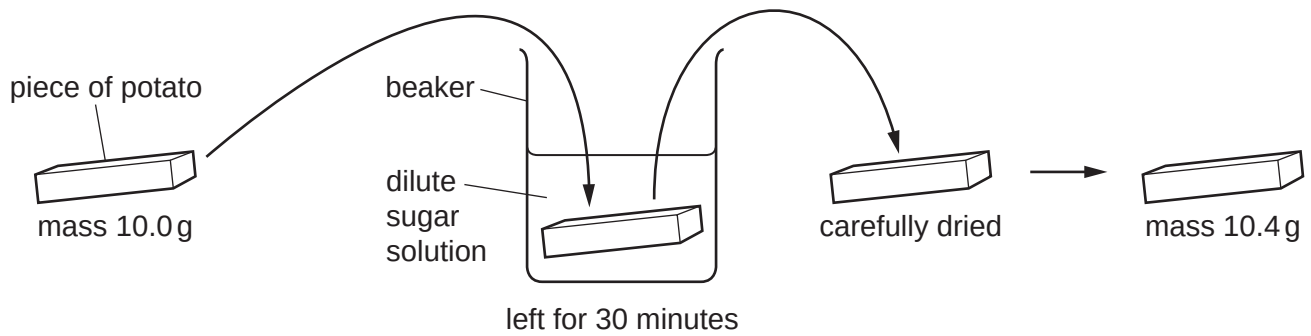


Which row names X and describes its function?

	name	function
A	cell membrane	controls which substances enter or leave the cell
B	cell membrane	maintains cell shape
C	cell wall	controls which substances enter or leave the cell
D	cell wall	maintains cell shape

3

3 The diagram shows the stages of an experiment.



Which statement explains the increase in mass?

- A** Sugar has moved into the cells of the potato by osmosis.
- B** Sugar has moved out of the cells of the potato by osmosis.
- C** Water has moved into the cells of the potato by osmosis.
- D** Water has moved out of the cells of the potato by osmosis.

4 Which statements about enzymes are correct?

- 1 Enzymes are biological catalysts.
- 2 Enzymes are made of fat.
- 3 Enzymes are made of protein.

- A** 1 and 2 **B** 1 and 3 **C** 1 only **D** 3 only

5 Which statement about photosynthesis is correct?

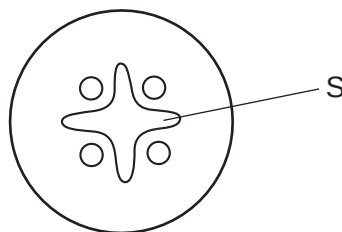
- A** A plant uses carbon dioxide and glucose to produce oxygen and water.
- B** A plant uses carbon dioxide and water to produce glucose and oxygen.
- C** A plant uses glucose and oxygen to produce carbon dioxide and water.
- D** A plant uses oxygen and water to produce glucose and carbon dioxide.

6 Which food helps prevent scurvy?

- A** bread
- B** cheese
- C** eggs
- D** lemons

4

- 7 The diagram shows a cross-section of a plant root.



Which row is correct for tissue S?

	name of tissue	substance transported
A	phloem	amino acids and sucrose
B	phloem	water
C	xylem	amino acids and sucrose
D	xylem	water

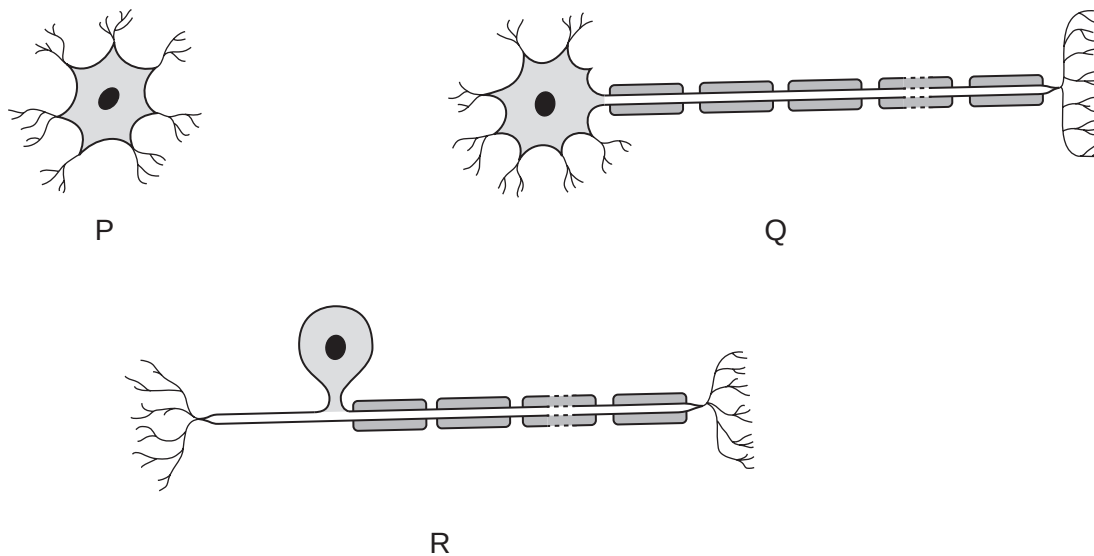
- 8 What increases the risk of coronary heart disease?

- A** reduced salt diet
- B** relaxation therapy
- C** regular exercise
- D** smoking tobacco

- 9 Which row shows the percentages for inspired air and expired air?

	inspired air / %		expired air / %	
	oxygen	carbon dioxide	oxygen	carbon dioxide
A	21	0.04	17	4
B	21	0.04	21	0.04
C	17	4	17	4
D	17	4	21	0.04

10 The diagram shows three types of neurone.



Which order do impulses pass through the neurones in a reflex action?

- A $P \rightarrow R \rightarrow Q$
- B $Q \rightarrow P \rightarrow R$
- C $R \rightarrow P \rightarrow Q$
- D $R \rightarrow Q \rightarrow P$

11 Which statement about reproduction is correct?

- A Sexual reproduction involves the fusion of two gamete nuclei.
- B Sexual reproduction results in the production of genetically identical offspring.
- C Asexual reproduction involves the fusion of two gamete nuclei.
- D Asexual reproduction results in the production of genetically different offspring.

12 Which row is correct for a human gamete?

	name of gamete	chromosome carried by gamete	where gamete is produced
A	egg cell	X	testes
B	egg cell	Y	ovaries
C	sperm	X	testes
D	sperm	Y	ovaries

13 Which statement describes a producer?

- A an organism that obtains its energy from dead or waste organic matter
- B an organism that makes its own organic nutrients using energy from sunlight
- C an organism that obtains its energy from feeding on other organisms
- D an animal that obtains its energy from eating plants

14 Which row describes particles present in $^{25}_{12}\text{Mg}^{2+}$?

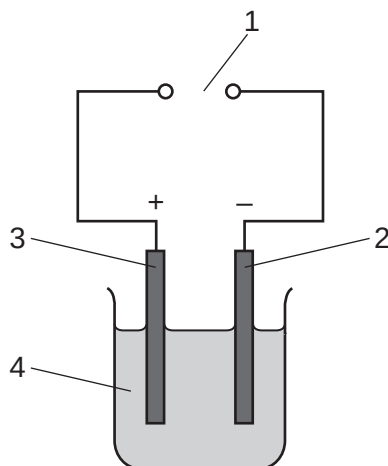
	neutrons	electrons
A	12	10
B	12	12
C	13	12
D	13	10

15 The formula of ethanol is $\text{C}_2\text{H}_5\text{OH}$.

How many different elements are present in ethanol?

- A 1 B 3 C 4 D 9

16 The apparatus used in the electrolysis of concentrated aqueous sodium chloride is shown.



Which row identifies the electrolyte and the cathode?

	electrolyte	cathode
A	1	2
B	1	3
C	4	2
D	4	3

17 Which statements about endothermic reactions are correct?

- 1 Thermal energy is taken in from the surroundings.
- 2 Thermal energy is released to the surroundings.
- 3 The temperature of the reaction mixture decreases.
- 4 The temperature of the reaction mixture increases.

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

18 Which element causes a compound to be coloured?

- A** a Group I element
- B** a Group II element
- C** a Group VIII element
- D** a transition element

19 Which property explains why aluminium is used to make food containers?

- A** low density
- B** high strength
- C** resistant to corrosion
- D** shiny

20 What is an alloy?

- A** a compound
- B** a mixture
- C** a metallic element
- D** a non-metallic element

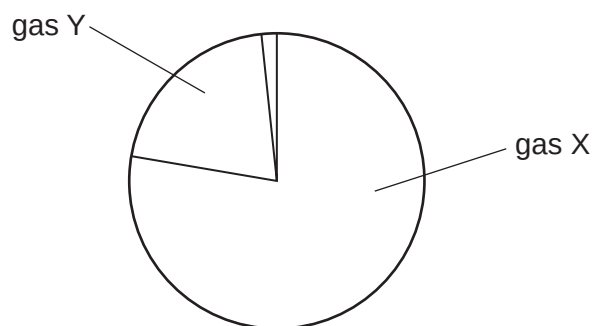
21 Which row describes the order of reactivity of the metals?

	most reactive  least reactive			
A	copper	calcium	zinc	potassium
B	copper	zinc	calcium	potassium
C	potassium	calcium	zinc	copper
D	potassium	zinc	calcium	copper

22 Which row shows the colour of copper(II) sulfate and of cobalt(II) chloride when they are added to water?

	copper(II) sulfate	cobalt(II) chloride
A	blue	blue
B	blue	pink
C	white	blue
D	white	pink

23 The diagram represents the composition of clean, dry air.



Which row identifies gas X and gas Y?

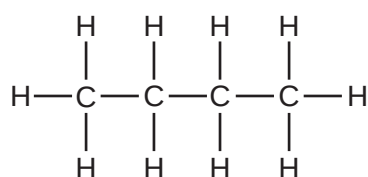
	gas X	gas Y
A	nitrogen	oxygen
B	oxygen	nitrogen
C	oxygen	carbon dioxide
D	carbon dioxide	nitrogen

24 Which property allows petroleum to be separated by fractional distillation?

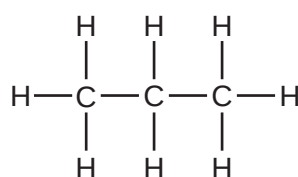
- A** boiling point
- B** colour
- C** density
- D** melting point

25 Which compound is the main constituent of natural gas?

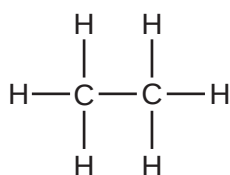
A



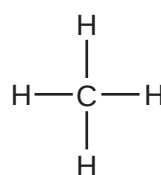
B



C



D



26 Which statement about alkanes is correct?

- A They contain one double covalent bond.
- B They contain only single covalent bonds.
- C They form polymers.
- D They react with aqueous bromine.

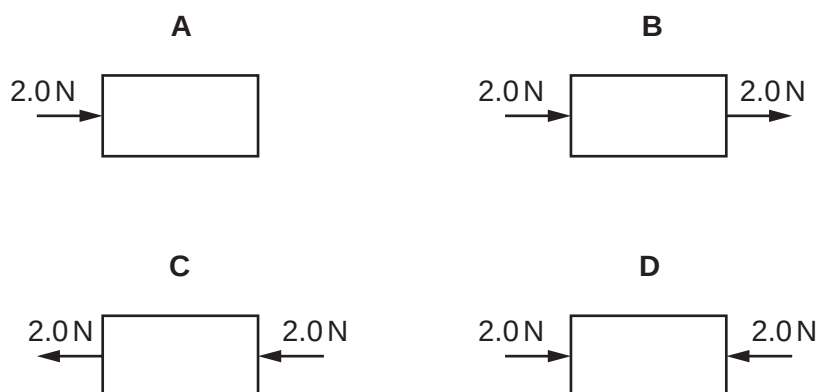
27 When aqueous copper(II) sulfate reacts with aqueous sodium hydroxide, a blue precipitate forms.

Which method is used to remove the precipitate from the reaction mixture?

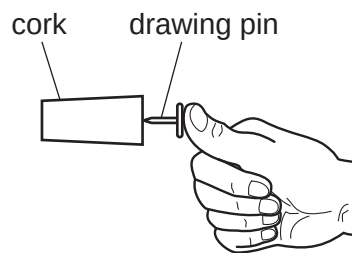
- A chromatography
- B distillation
- C filtration
- D crystallisation

28 The diagrams show the only forces acting on each of four objects moving in a straight line.

Which object is moving at constant speed in a straight line?

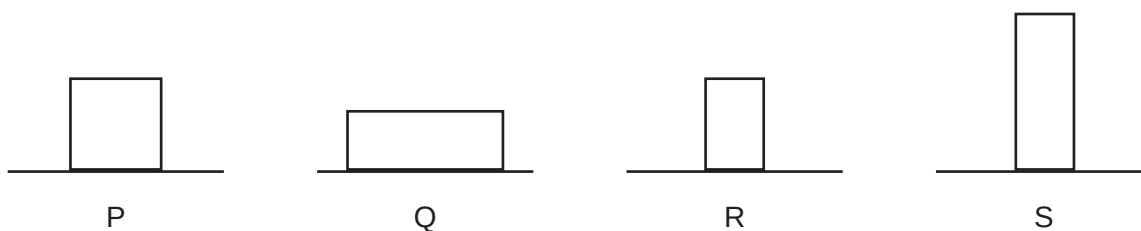


- 29 A person pushes a drawing pin into a cork with their thumb.

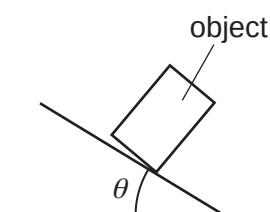


Which statement explains why the pin goes into the cork and **not** into the thumb?

- A The force on the cork is greater than the force on the thumb.
 - B The force on the cork is less than the force on the thumb.
 - C The pressure on the cork is greater than the pressure on the thumb.
 - D The pressure on the cork is less than the pressure on the thumb.
- 30 The diagram shows four objects, P, Q, R and S, with uniform density, resting on different horizontal surfaces. The objects are all drawn to the same scale.



The surfaces are slowly tilted through an angle θ until the object falls over.



For which object is the value of θ the greatest?

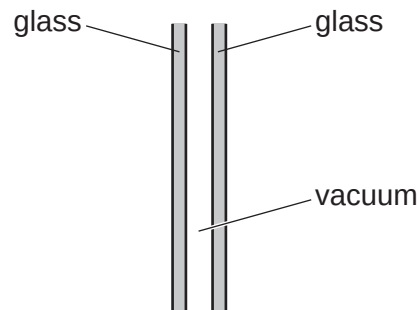
- A object P
- B object Q
- C object R
- D object S

- 31 Liquid in a beaker evaporates quickly.

Which row shows what happens to the mass and to the temperature of the liquid remaining in the beaker?

	mass	temperature
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

- 32 The diagram shows a type of double glazing in a window. The double glazing consists of two sheets of glass separated by a vacuum.



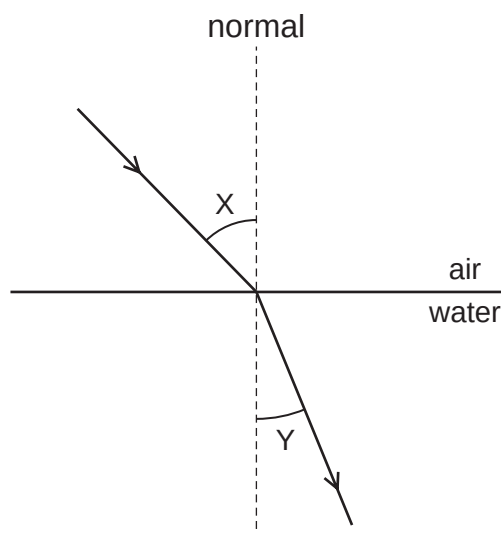
Which methods of energy transfer are prevented by the vacuum?

- A** conduction and convection only
 - B** conduction and radiation only
 - C** convection and radiation only
 - D** conduction, convection and radiation
- 33 A student investigates the motion of a small ball that is floating on water in a tank. A wave passes along the water surface from left to right.

What happens to the ball?

- A** It does not move.
- B** It moves only to the left.
- C** It moves only to the right.
- D** It moves up and down.

34 Light travels from air into water.



What are the names of angle X and angle Y?

	angle X	angle Y
A	angle of incidence	angle of reflection
B	angle of incidence	angle of refraction
C	angle of refraction	angle of incidence
D	angle of refraction	angle of reflection

35 The table shows the highest frequency of sound heard by different animals.

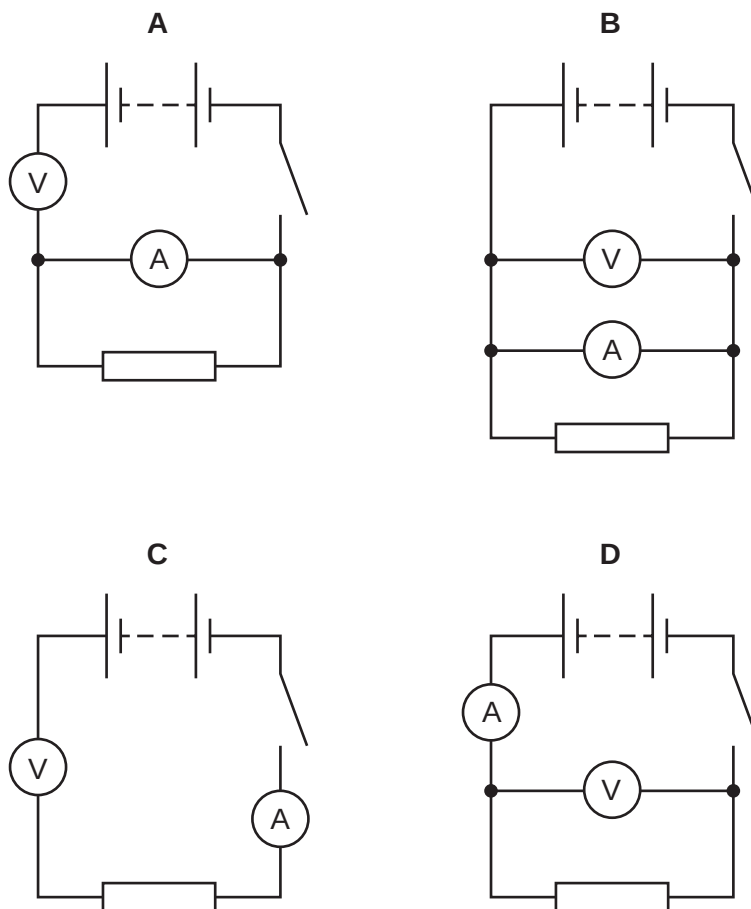
animal	highest frequency heard / kHz
bat	200
bird	10
cat	79

The highest frequency sound that a healthy human ear can hear is f .

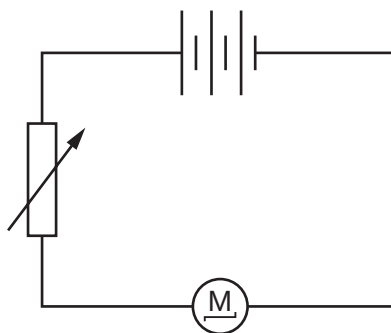
Which animals **cannot** hear sound of frequency f ?

- A** a bird only
- B** a bird and a cat only
- C** a bat, a bird and a cat
- D** none of the animals in the table

36 Which circuit is suitable for determining the resistance of the fixed resistor?



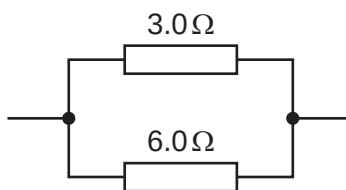
37 The diagram shows a circuit containing three cells, a variable resistor and an electric motor.



Which actions together **must** increase the speed of the motor?

- A** decreasing the number of cells and decreasing the resistance of the variable resistor
- B** decreasing the number of cells and increasing the resistance of the variable resistor
- C** increasing the number of cells and decreasing the resistance of the variable resistor
- D** increasing the number of cells and increasing the resistance of the variable resistor

- 38 The diagram shows a $3.0\ \Omega$ resistor connected to a $6.0\ \Omega$ resistor.



What is a possible combined resistance of the two resistors?

- A** $2.0\ \Omega$ **B** $3.0\ \Omega$ **C** $4.5\ \Omega$ **D** $9.0\ \Omega$
- 39 A scientist works with a radioactive source that emits gamma (γ)-rays. The scientist takes several precautions.
- Which precaution does **not** give the scientist any protection?
- A** Keep a lead screen between the scientist and the source.
B Use a detector to measure the count rate of the source.
C Only use the source for a short period of time.
D Have a large distance between the scientist and the source.
- 40 The orbit of a planet lies between the orbit of Venus and the orbit of Mars.
- What is the planet?
- A** Saturn
B Jupiter
C Earth
D Uranus

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