



**BEATTY SECONDARY SCHOOL
END-OF-YEAR EXAMINATION 2025
SECONDARY TWO G3**

CANDIDATE
NAME

CLASS

REGISTER
NUMBER

LOWER SECONDARY SCIENCE

6 October 2025

Setter: Ms Ain

Sections A, B and C: 2 hours

Additional Materials:
Multiple Choice Answer Sheet

READ THESE INSTRUCTIONS FIRST

This Lower Secondary Science Paper consists of 3 sections – Sections A, B and C.

SECTION A (30 MARKS)

You are advised to spend no more than **30 minutes** on **Section A**.

Write in soft pencil.

Do not use staples, paper clips, glue or correction fluid.

Write your name, class and register number on the Multiple Choice Answer Sheet provided.

There are **thirty** 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 separate Answer Sheet.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

A copy of the Periodic Table is printed on page 16.

The use of an approved scientific calculator is expected, where appropriate.

For Examiner's Use	
A	30

Section A

Answer **all** the questions in this section on the Multiple Choice Answer Sheet provided.

- 1 The statements are written by a student who is carrying out an experiment on plants.

Plant A, which received 8 hours of light a day, grew 3 cm in a day on average.
Plant B, which received 5 hours of light a day, grew 2 cm in a day on average.
This shows that plants that receive more light will grow taller.

Which stage of the scientific method is indicated by the student's statements?

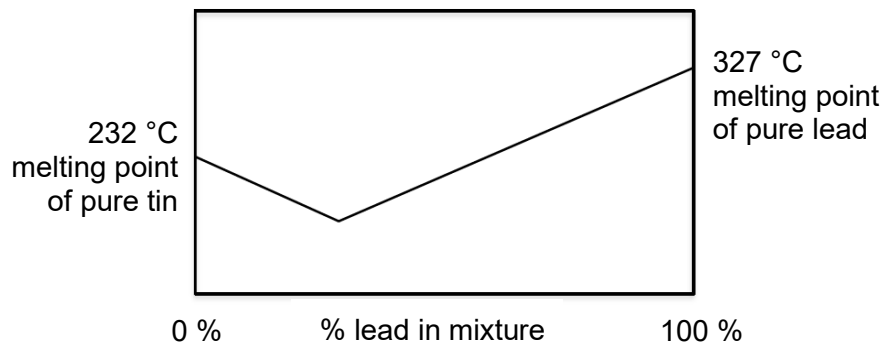
- A** asking a question
 - B** constructing a hypothesis
 - C** drawing a conclusion
 - D** making an observation
- 2 A student tested the precision and accuracy of an electronic mass balance using a 10.00 g mass. His results are shown in the table.

description	reading / g
no object placed	- 2.50 g
one 10.00 g mass	7.50 g
	7.50 g
	7.50 g

What can the student conclude about the obtained readings?

- A** The readings are affected by parallax error and are not precise.
- B** The readings are affected by parallax error but are precise.
- C** The readings are affected by zero error and are not precise.
- D** The readings are affected by zero error but are precise.

- 3 The diagram shows the melting points of a mixture of lead and tin.



Which statement is correct?

- 1 A mixture with more lead will melt above 232 °C.
- 2 Any mixture of tin and lead will melt below 327 °C.
- 3 The melting point of the mixture increases as more lead is added.

- A** 1 only
B 2 only
C 3 only
D none of the above

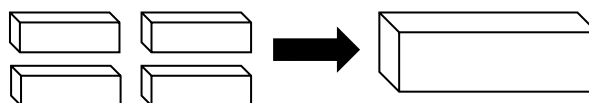
- 4 A hardness scratch test was conducted on four materials, W, X, Y and Z.

- W is left with a mark when X is rubbed with it.
- Y is scratched by the other three materials and is left with a mark.
- When rubbed with Z, all three materials are left with a mark.

Which is the correct order of hardness for the four materials?

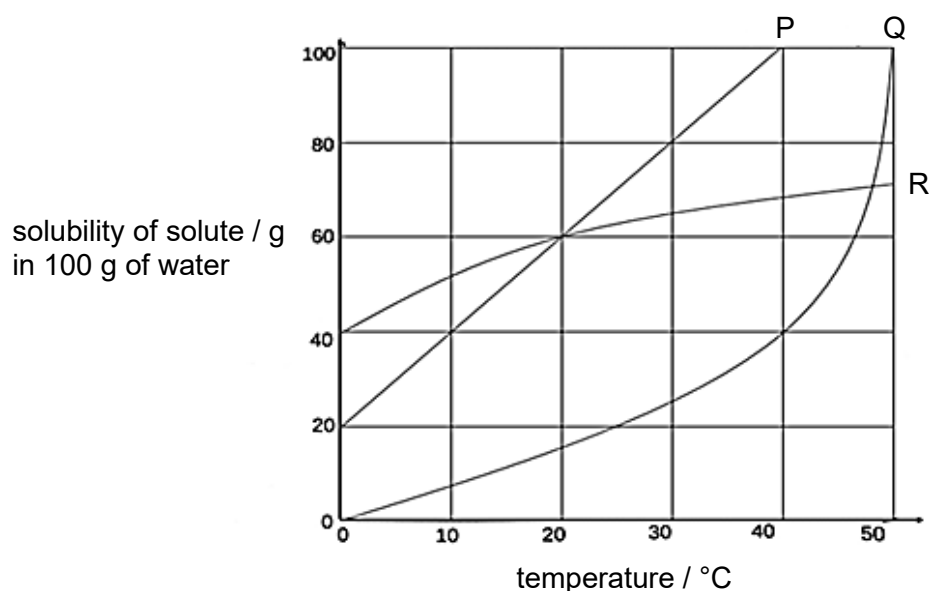
	hardest $\longrightarrow$ softest
A	X > Y > Z > W
B	Y > W > X > Z
C	Z > X > W > Y
D	Z > Y > X > W

- 5 Four identical small plasticine blocks, each with a density of 1300 kg/m^3 , are remoulded to form a large plasticine block.



What is the density of the large plasticine block?

- A 325 kg/m^3
 B 1300 kg/m^3
 C 2600 kg/m^3
 D 5200 kg/m^3
- 6 The graph shows how the solubility values of three salts P, Q and R, change with temperature.

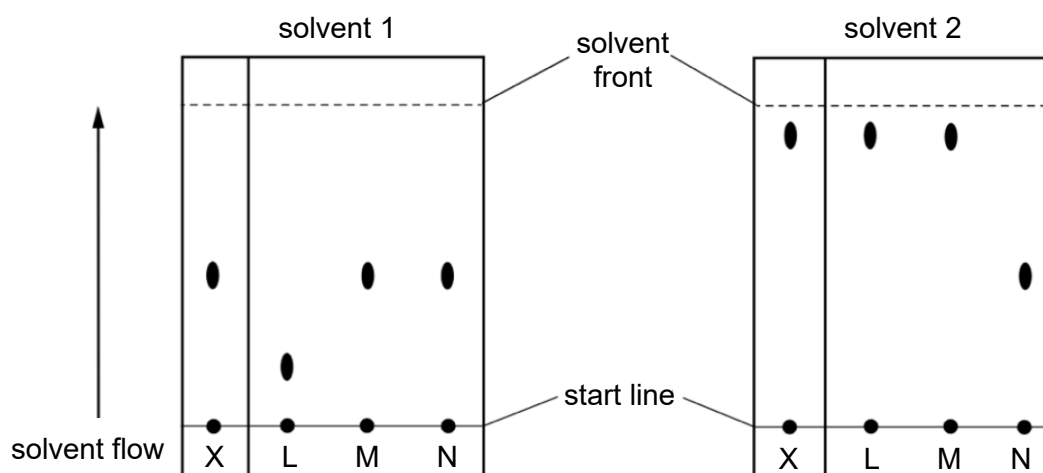


Which statement is correct?

- A P has the highest solubility in water.
 B R has the highest solubility in water.
 C When 50 g of R is added to 100 g of water at 20°C , a solution is obtained.
 D When 100 g of Q is added to 100 g of water at 40°C , only 60 g of Q can dissolve.

- 7 Solution X contains one or more of three substances, L, M, and N.

Two different solvents are used to produce two chromatograms comparing X with the three substances. The results are shown.



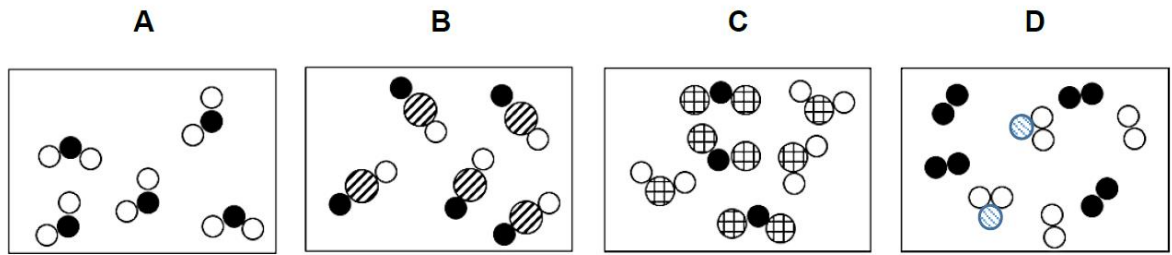
What does X contain?

- A** L only
B M only
C L and M
D M and N
- 8 A student wishes to extract a coloured solution from some berries to make an indicator solution.
- Which steps should the student follow in sequence?

- 1 add a solvent
- 2 add acid
- 3 crush the berries
- 4 distil the mixture
- 5 filter the mixture

- A** 2, 1 and 4
B 2, 5 and 4
C 3, 1 and 5
D 3, 2 and 5

- 9 Which diagram shows a mixture of elements and compounds?



- 10 The word **HAT** was written on a piece of paper. Two mirrors, X and Y, were held standing vertically on two sides of the paper as shown in the diagram.



Which images would be seen when the observer looks into mirrors X and Y?

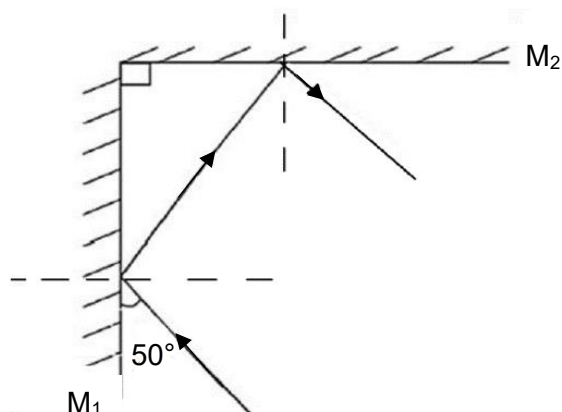
	image in mirror X	image in mirror Y
A	HAT	TAH
B	TAH	HAT
C	HAT	HAT
D	TAH	HAT

- 11 Which statements are **not** true about the nucleus of a cell?

- I It contains thread-like structures responsible for hereditary factors.
- II It contains tiny discs which have a green substance to absorb sunlight.
- III It is made of cellulose and gives the cell its shape.
- IV It is the site where most chemical reactions take place within the cell.

- A** I and IV only
- B** II and III only
- C** I, III and IV only
- D** II, III and IV only

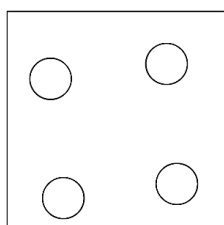
- 12 The diagram (not drawn to scale) shows a ray of light incident on two plane mirrors, M_1 and M_2 .



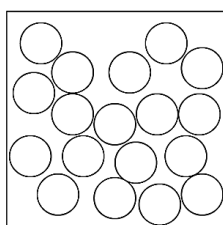
Which row correctly shows the angle of incidence at mirror M_1 and the angle of reflection at mirror M_2 ?

	angle of incidence at M_1	angle of incidence at M_2
A	40°	40°
B	40°	50°
C	50°	40°
D	50°	50°

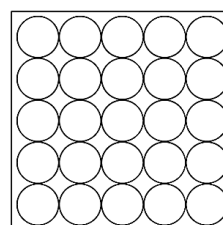
- 13 The diagrams show the arrangement of particles in a substance at different temperatures.



-272°C



-269°C



-300°C

Which substance, **A**, **B**, **C** or **D**, could the diagrams represent?

substance	melting point / $^\circ\text{C}$	boiling point / $^\circ\text{C}$
A	-272	-268
B	-250	-215
C	-115	-41
D	10	130

14 Which statement about atoms is correct?

- A The mass of an atom is entirely due to its nucleus.
- B The nucleus and electrons repel each other.
- C The proton number of elements decreases from left to right of the Periodic Table.
- D The protons and neutrons have opposite charges.

15 The table shows the main ingredients found in a carbonated drink.

ingredient	chemical formula
caffeine	$\text{C}_8\text{H}_{10}\text{N}_4\text{O}_2$
carbonic acid	H_2CO_3
citric acid	$\text{C}_6\text{H}_8\text{O}_7$
sucrose	$\text{C}_{12}\text{H}_{22}\text{O}_{11}$

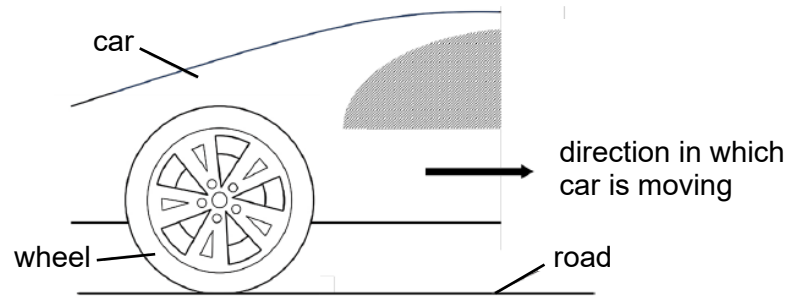
Which statement is **not** true about the substances listed?

- A The atomic number of the carbon atom is the same in all the substances.
- B The number of elements is the same in all the substances.
- C They are all molecules of compounds.
- D The sucrose molecule contains the greatest number of atoms.

16 Which planet has the greatest gravitational field strength?

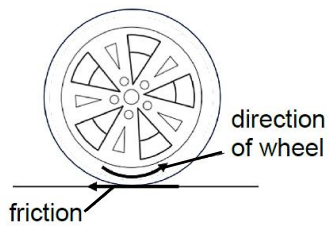
planet	mass / kg	weight / N
A	0.0025	0.25
B	0.0025	0.50
C	0.0050	0.50
D	0.0100	0.50

- 17 The diagram shows part of a car with its wheel in contact and moving on a road.

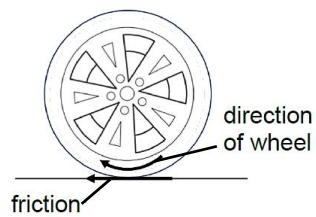


What is the correct direction of movement of the wheel and frictional force acting on it?

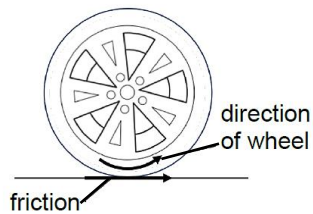
A



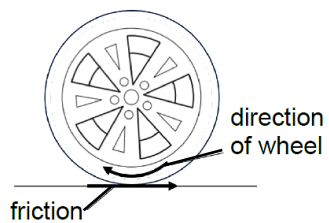
B



C



D



- 18 A student is seated on a four-legged chair as shown.

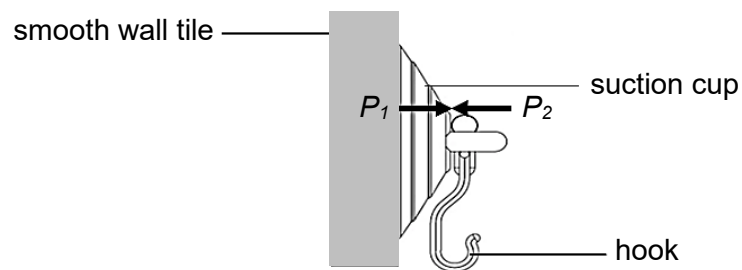


The area of contact of each leg of the chair with the floor is 0.005 m^2 .

If the pressure exerted on the floor is 20 kPa , what is the combined weight of the boy and the chair? ($1 \text{ kPa} = 1000 \text{ Pa}$)

- A 100 N
- B 200 N
- C 400 N
- D 500 N

- 19 The diagram shows a suction cup holding a hook in place on a smooth wall tile.



The air pressure between the suction cup and smooth wall tile is P_1 .

The air pressure exerted by the surrounding (atmospheric pressure) on the suction cup is P_2 .

How does P_1 compare with P_2 ?

- A P_1 and P_2 are equal to zero.
- B P_1 equals to P_2 .
- C P_1 is less than P_2 .
- D P_1 is more than P_2 .

- 20** Fig. 20.1 shows a bimetallic strip in a closed electric circuit when unheated and how it bends away from the lower electrical contact when heated, creating an open electric circuit.

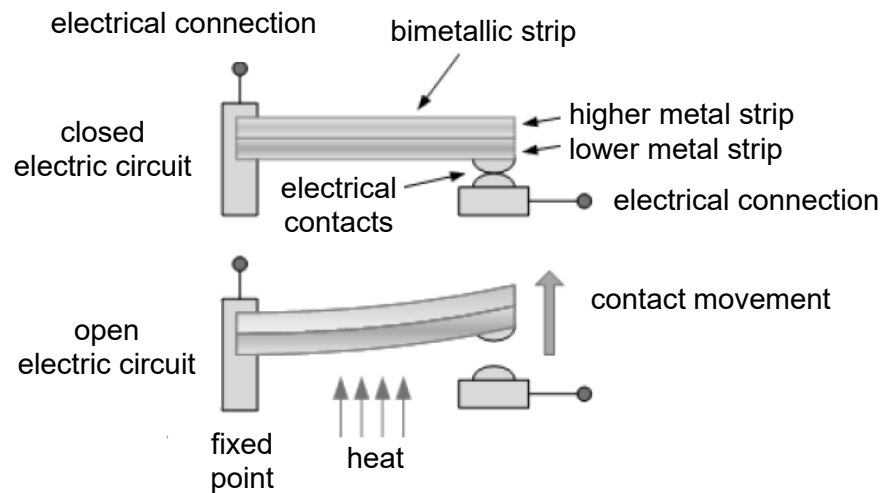


Fig. 20.1

Fig. 20.2 shows how three different metals P, Q and R expand when heated.

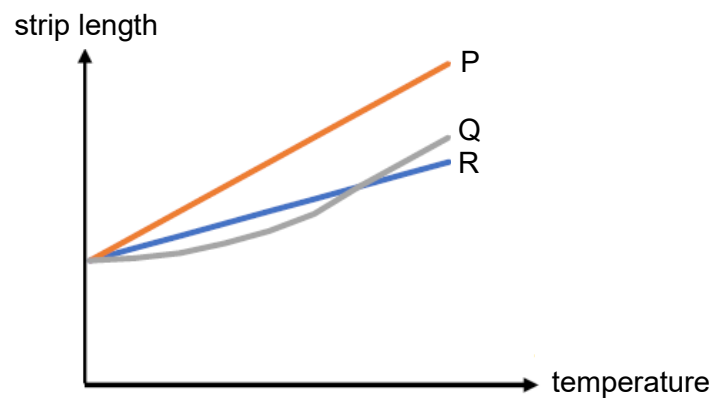


Fig. 20.2

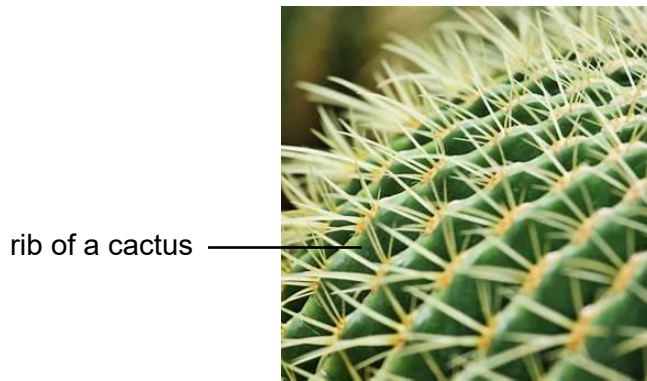
Which is the best choice of metals for the higher and lower metal strips?

	higher metal strip	lower metal strip
A	P	Q
B	P	R
C	Q	P
D	Q	R

- 21** What do mosquitoes and their eggs, larvae and pupae living in a pond form?

- A** a community
- B** an ecosystem
- C** a habitat
- D** a population

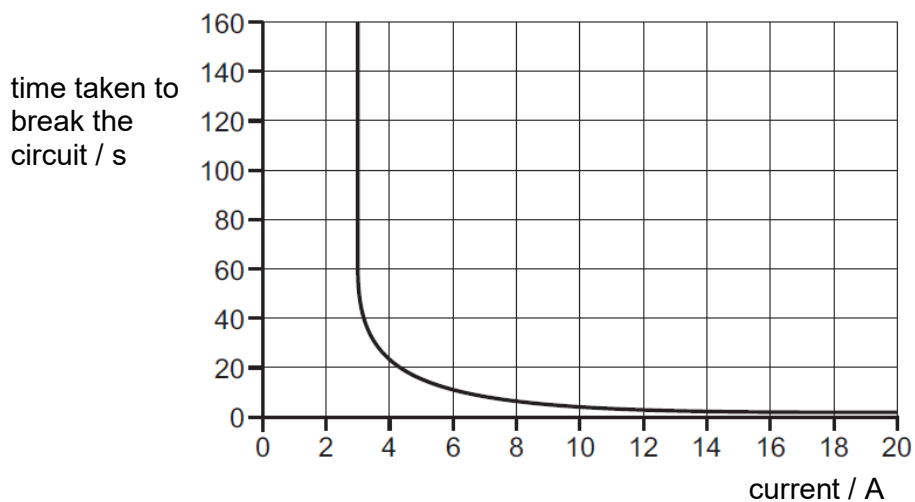
- 22** In hot climates, certain cactus species have ribs that help them stay cool by creating shaded pockets between the ribs. The ribs also provide a larger surface area for heat emission.



The same species of cacti is placed in a cold climate, and it was observed that most of the ribs disappeared.

Which statement about the adaptation of cacti is correct?

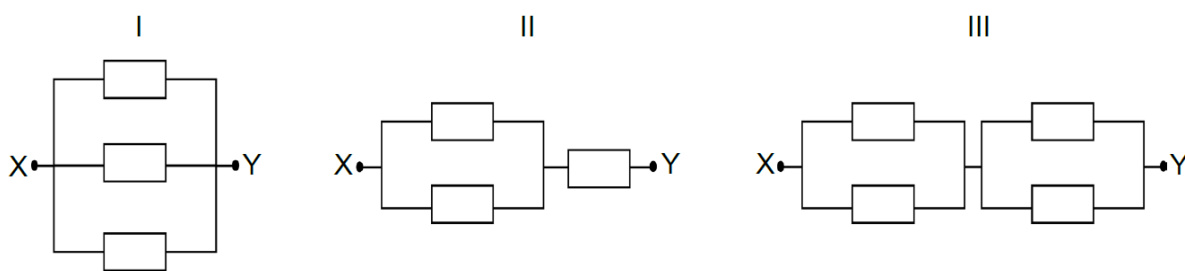
- A** It is a behavioural adaptation for the cactus to decrease its surface area in the cold climate.
- B** It is a behavioural adaptation for the cactus to increase its surface area in the cold climate.
- C** It is a structural adaptation for the cactus to decrease its surface area in the cold climate.
- D** It is a structural adaptation for the cactus to increase its surface area in the cold climate.
- 23** The time taken to break the circuit depends on the current, as shown in the graph.



What happens when the current in the circuit is 1 A and when the current is 16 A?

	when the current is 1 A	when the current is 16 A
A	the circuit does not break	the circuit does not break
B	the circuit does not break	the circuit breaks in less than 10 seconds
C	the circuit breaks in less than 4 seconds	the circuit does not break
D	the circuit breaks in less than 4 seconds	the circuit breaks in less than 10 seconds

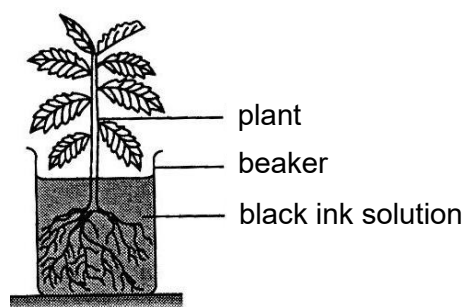
24 Identical resistors are connected in different arrangements.



Which order of arrangement shows an increasing resistance between point X and Y?

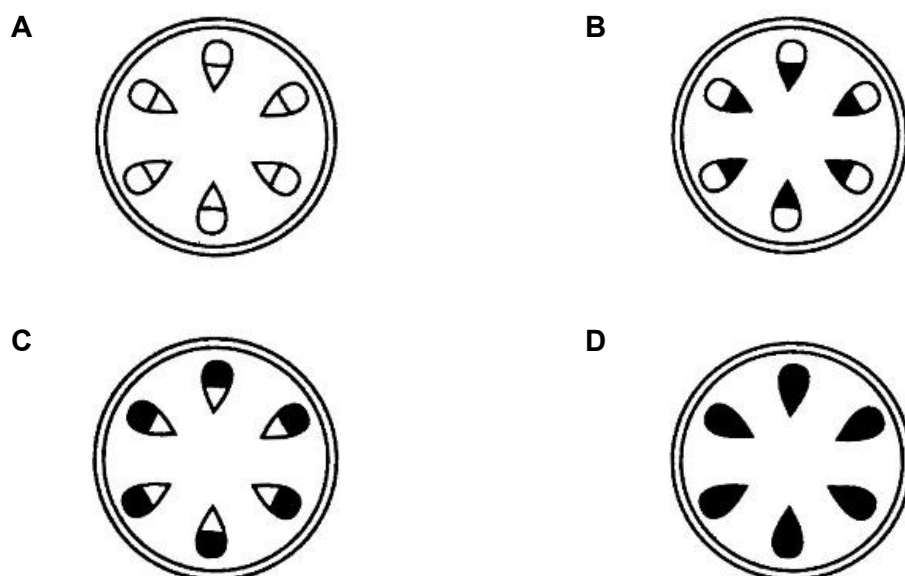
- A I, II, III
- B I, III, II
- C II, III, I
- D III, II, I

25 A plant was placed in a beaker of black ink solution as shown.



After three days, a section of the stem was cut and observed.

Which diagram shows the cross-section of the stem?



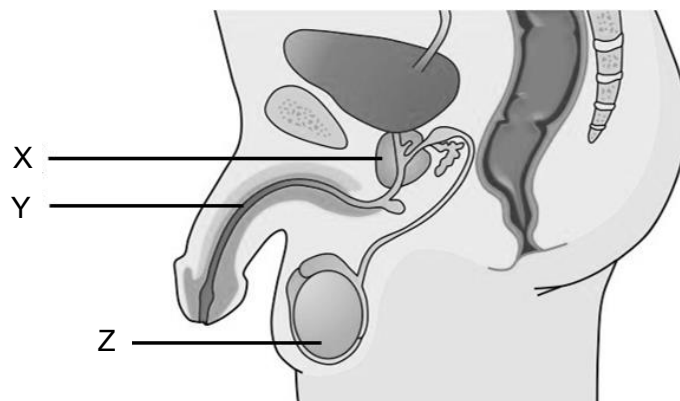
26 Which statement on the transport system in humans is correct?

- A** Arteries carry blood towards the heart while veins carry blood away from the heart.
- B** Capillaries allow for exchange of both waste substances and nutrients at the tissues.
- C** Capillaries and veins are the site of exchange of substances.
- D** The heart is a muscular pump that pumps blood into the veins.

27 Which statement is true of sexually transmitted infections?

- A** Sexually transmitted infections can only be transmitted through sexual intercourse with infected partners.
- B** Syphilis and gonorrhoea are caused by bacteria.
- C** There is no cure for all sexually transmitted infections.
- D** Transmission of sexually transmitted infections can be completely prevented by using condoms.

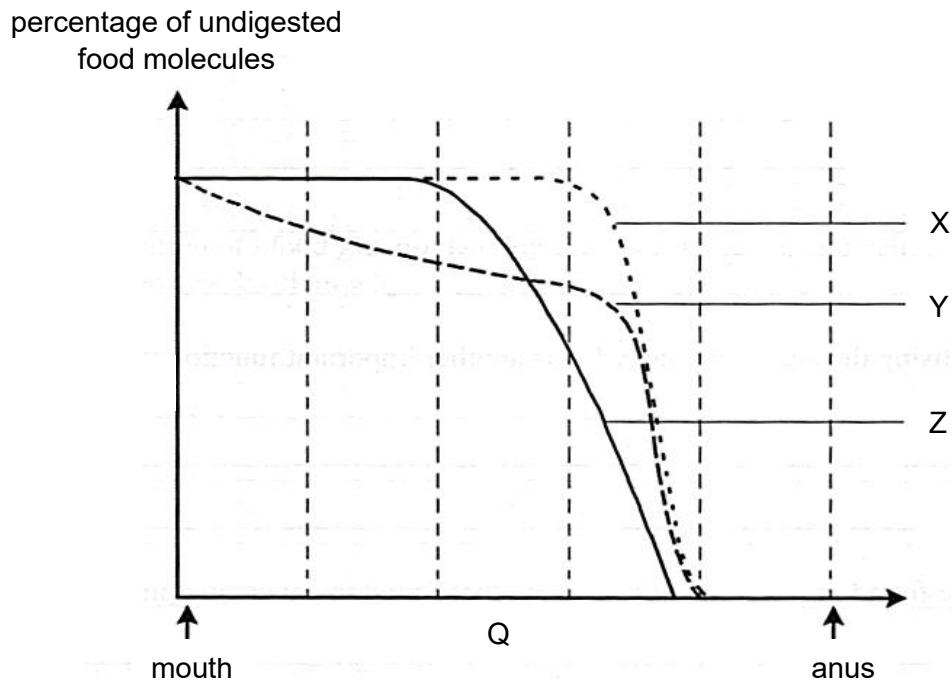
28 The diagram shows the male reproductive system.



Which statement about parts X, Y and Z is correct?

- A** Only semen passes through Y.
- B** Sperms travel from Z, enter X and leave the body through Y.
- C** Upon puberty, the production of sperms in Z decreases.
- D** X produces nutrient fluid that provides nutrients for the sperms.

For Questions **29** and **30**, refer to the diagram, which shows the percentages of nutrients X, Y and Z digested as they pass through the human digestive system.



29 Which part of the human digestive system is Q likely to be?

- A** oesophagus
- B** rectum
- C** small intestine
- D** stomach

30 What is the identity of nutrient X?

- A** carbohydrates
- B** fats
- C** protein
- D** water

End of Section A

The Periodic Table of Elements

Group																				
1	2	1												13	14	15	16	17	18	
		1 H hydrogen 1																		
3 Li lithium 7	4 Be beryllium 9	proton (atomic) number atomic symbol name relative atomic mass																		
	11 Na sodium 23	12 Mg magnesium 24																		
	19 K potassium 39	20 Ca calcium 40	21 Sc scandium 45	22 Ti titanium 48	23 V vanadium 51	24 Cr chromium 52	25 Mn manganese 55	26 Fe iron 56	27 Co cobalt 59	28 Ni nickel 59	29 Cu copper 64	30 Zn zinc 65	31 Ga gallium 70	32 Ge germanium 73	33 As arsenic 75	34 Se selenium 79	35 Br bromine 80	36 Kr krypton 84		
	37 Rb rubidium 85	38 Sr strontium 88	39 Y yttrium 89	40 Zr zirconium 91	41 Nb niobium 93	42 Mo molybdenum 96	43 Tc technetium —	44 Ru ruthenium 101	45 Rh rhodium 103	46 Pd palladium 106	47 Ag silver 108	48 Cd cadmium 112	49 In indium 115	50 Sn tin 119	51 Sb antimony 122	52 Te tellurium 128	53 I iodine 127	54 Xe xenon 131		
55 Cs caesium 133	56 Ba barium 137	lanthanoids												81 Tl thallium 204	82 Pb lead 207	83 Bi bismuth 209	84 Po polonium —	85 At astatine —	86 Rn radon —	
87 Fr francium —	88 Ra radium —	actinoids												114 Fl flerovium —	116 Lv livermorium —					

lanthanoids	57 La lanthanum 139	58 Ce cerium 140	59 Pr praseodymium 141	60 Nd neodymium 144	61 Pm promethium —	62 Sm samarium 150	63 Eu europium 152	64 Gd gadolinium 157	65 Tb terbium 159	66 Dy dysprosium 163	67 Ho holmium 165	68 Er erbium 167	69 Tm thulium 169	70 Yb ytterbium 173	71 Lu lutetium 175
	89 Ac actinium —	90 Th thorium 232	91 Pa protactinium 231	92 U uranium 238	93 Np neptunium —	94 Pu plutonium —	95 Am americium —	96 Cm curium —	97 Bk berkelium —	98 Cf californium —	99 Es einsteinium —	100 Fm fermium —	101 Md mendelevium —	102 No nobelium —	103 Lr lawrencium —