



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

CANDIDATE  
NAME

CENTRE  
NUMBER

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**COMBINED SCIENCE**

**5129/02**

Paper 2

**May/June 2012**

**2 hours 15 minutes**

Candidates answer on the Question Paper.

No Additional Materials are required.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

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

**DO NOT WRITE IN ANY BARCODES.**

Answer **all** questions.

A copy of the Periodic Table is printed on page 24.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

**For Examiner's Use**

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This document consists of **21** printed pages and **3** blank pages.



1 Fig. 1.1 shows a photograph of some red blood cells that have been greatly magnified

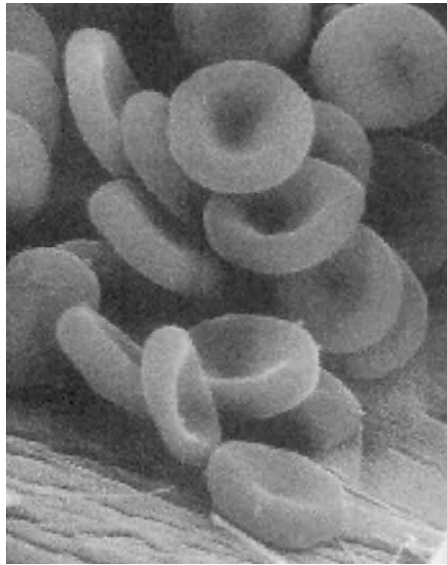


Fig. 1.1

(a) (i) State the function of red blood cells.

.....  
..... [1]

(ii) State **two** features of red blood cells that make them efficient in carrying out this function.

feature 1 .....

feature 2 ..... [2]

(iii) Explain the importance of each feature in (a)(ii).

importance of feature 1 .....

.....

importance of feature 2 .....

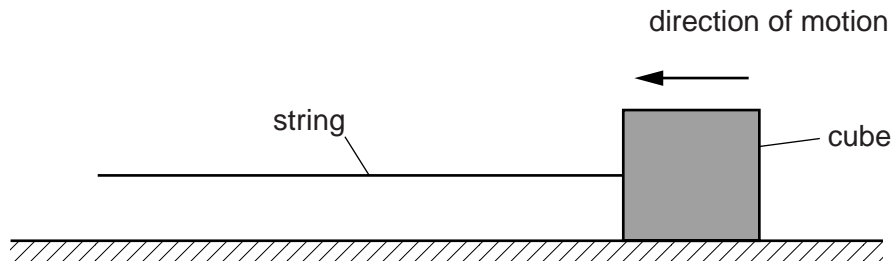
..... [2]

(b) Name the liquid part of the blood that surrounds the red blood cells.

..... [1]

- 2 (a) A string is used to pull a cube across a smooth horizontal surface.

This is shown in Fig. 2.1.



**Fig. 2.1**

The cube has a mass of 0.20 kg. The constant force accelerating the cube is 0.32 N.

Calculate the acceleration of the cube.

acceleration = ..... units ..... [3]

- (b) On Earth, the gravitational field strength  $g = 10 \text{ N/kg}$ .

Calculate the weight of the cube.

weight = ..... N [1]

- 3 (a) Sodium reacts with chlorine to produce sodium chloride.  
The equation for the reaction is



The relative molecular mass,  $M_r$ , of sodium chloride is 58.5.  
( $A_r$ : Na, 23; Cl, 35.5)

Complete the following sentences.

46 g of sodium reacts with .....g of chlorine and produces  
.....g of sodium chloride.

4.6 g of sodium reacts with .....g of chlorine and produces  
.....g of sodium chloride.

1.15 g of sodium produces .....g of sodium chloride. [4]

- (b) State the type of bonding present in sodium chloride.

..... [1]

- (c) State why chlorine is used in the purification of water supplies.

.....  
..... [1]

- 4 (a) State the units of the moment of a force. ....  
 (b) Fig. 4.1 shows a spanner being used to undo a bolt.

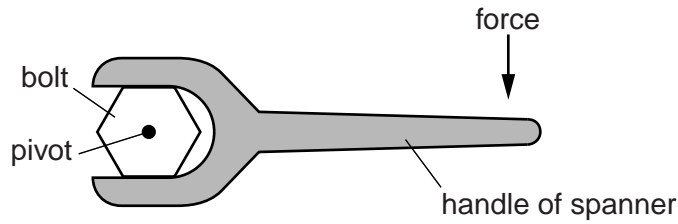


Fig. 4.1

The force needed to undo the bolt is smaller when a spanner with a longer handle is used.

Explain why.

.....  
 .....  
 ..... [2]

- 5 Atoms are made up of electrons, protons and neutrons.

- (a) Complete Fig. 5.1 to show the relative charge and the relative mass of each particle.

particle	relative charge	relative mass
electron		$\frac{1}{1840}$
proton	+1	
neutron		1

Fig. 5.1

[3]

- (b)  $^{12}\text{C}$  and  $^{14}\text{C}$  are isotopes of the element carbon.

- (i) State how the two isotopes are different.

.....  
 ..... [1]

- (ii) Explain why the two isotopes have the same chemical properties.

.....

6 Fig. 6.1 shows the human digestive system.

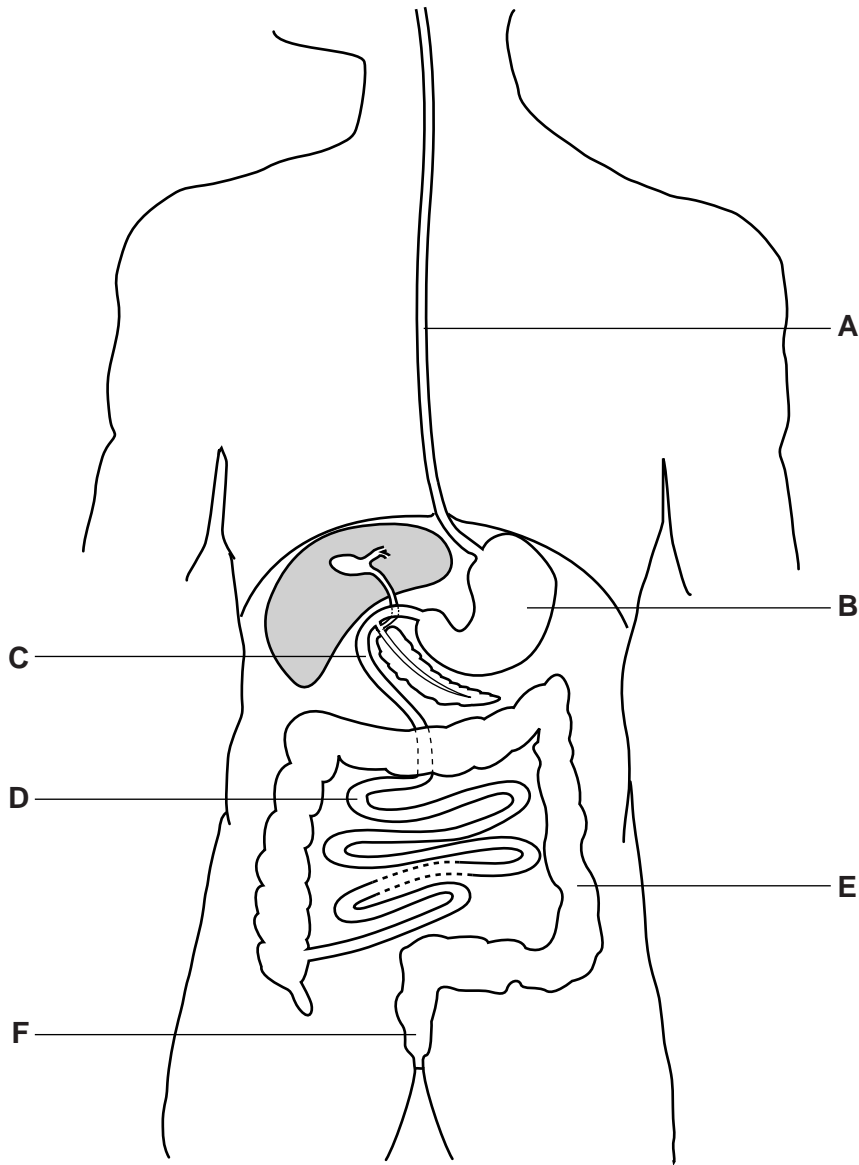


Fig. 6.1

(a) State a letter in Fig. 6.1 which shows where

(i) glucose is absorbed, .....

[1]

(ii) most water is absorbed. ....

[1]

(b) Some digestion takes place in the stomach.

Suggest and explain the importance of **another** function of the stomach.

function .....

explanation of importance .....

.....

[2]

(c) There is a tube between the gall bladder and the duodenum.

State and explain how digestion is affected when this tube becomes blocked.

.....

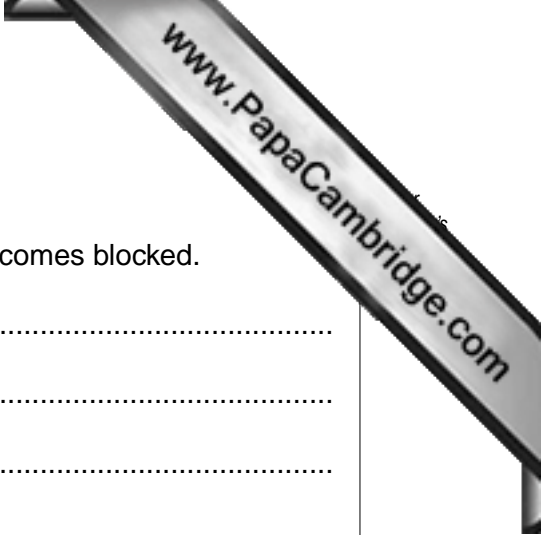
.....

.....

.....

.....

..... [3]



7 (a) Respiration is defined as the release of energy from food substances in living cells.

State **two** differences between aerobic respiration and anaerobic respiration.

1 .....

.....

2 .....

.....

[2]

(b) The breathing of a student is observed while he is resting.

The student then exercises vigorously and his breathing is observed again.

State two **visible** differences in his breathing before and during exercise.

1 .....

.....

2 .....

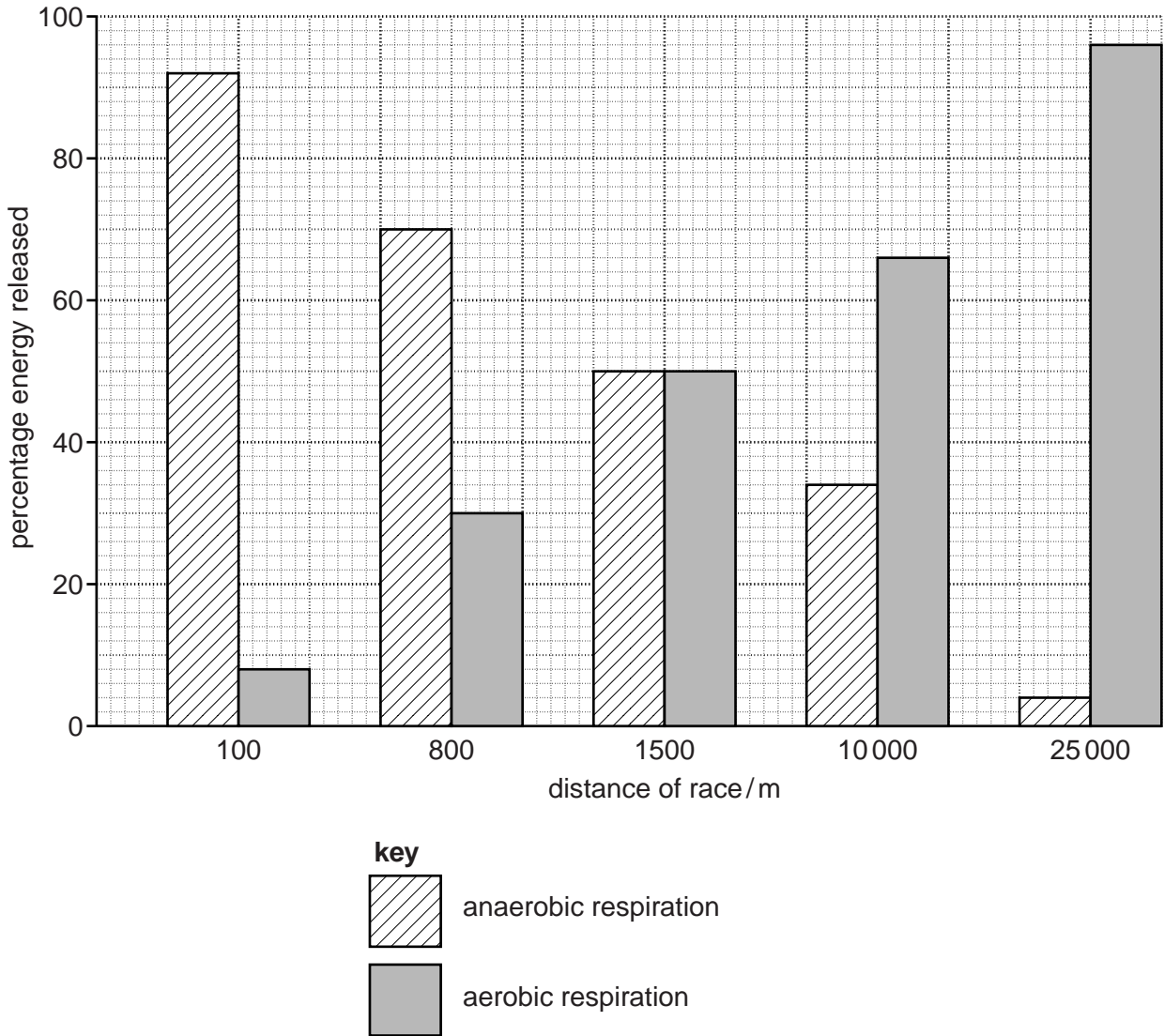
.....

[2]



(c) Athletes compete in races of different distances.

Fig. 7.1 shows the percentage of energy released by aerobic respiration and anaerobic respiration during these races.



**Fig. 7.1**

(i) Use Fig. 7.1 to find the length of race for which the athlete gains 50% of his energy from aerobic respiration.

length of race = ..... m [1]

(ii) What does Fig. 7.1 show about the type of respiration and the length of race?

.....

.....

.....

.....

[2]

8 A ripple tank is used to show wave motion on the surface of water.

The wave has a wavelength of 0.5 cm and an amplitude of 4.0 mm.

(a) Complete Fig. 8.1 to show at least one wavelength of a wave with this wavelength and amplitude. [2]

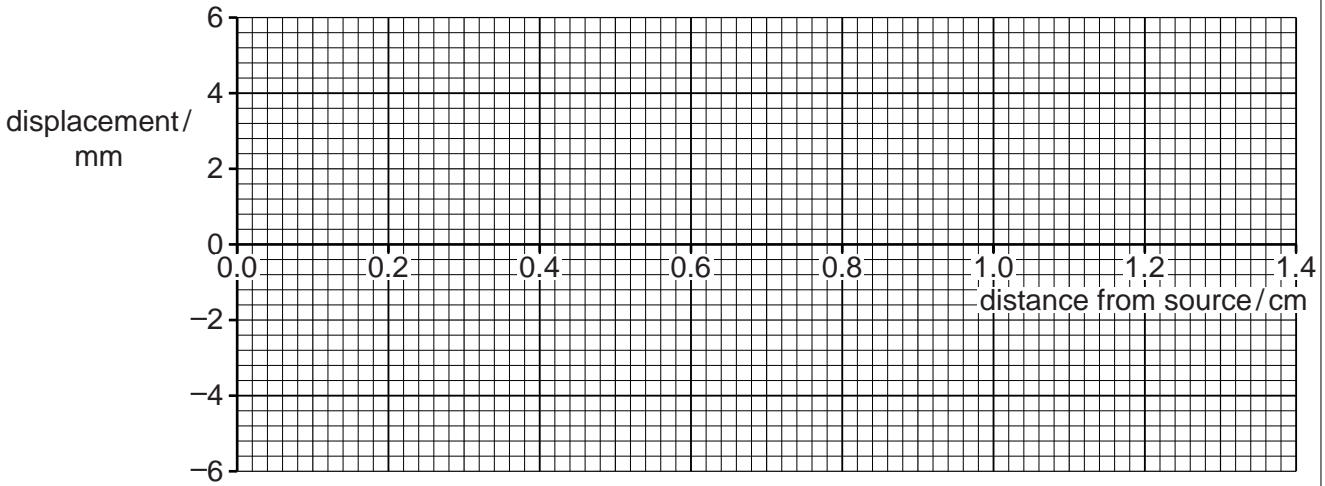


Fig. 8.1

(b) The wave has a frequency of 6.0 Hz.

Calculate the speed of the wave.

speed = ..... cm/s [2]

9 (a) In Fig. 9.1, the boxes on the left give the names of some elements.

The boxes on the right show the reaction of elements with water.

Draw a line to link each element to its reaction with water.

element	reaction with water
copper	reacts vigorously with steam
magnesium	reacts vigorously with cold water
iron	no reaction
potassium	reacts slowly with cold water and steam

[4]

Fig. 9.1

(b) When a metal reacts with water, hydrogen gas is released.

State the test for hydrogen gas.

test .....

result .....

[2]

10 Use words from the list to complete the sentences below.

mesophyll

osmosis

respiration

phloem

photosynthesis

xylem

root hair

transpiration

Each word may be used once, more than once or not at all.

Water enters a plant by moving into the ..... cells by  
the process of .....

Water moves from cell to cell across the plant by the same  
process until it reaches the .....

Water moves upwards to the leaves where it is lost through  
the stomata. This process is called .....

[4]

- 11 A ball on the end of a nylon string is given a charge. A positively-charged rod is brought close to the ball. The ball moves away from the positive charge, as shown in Fig. 11.1.

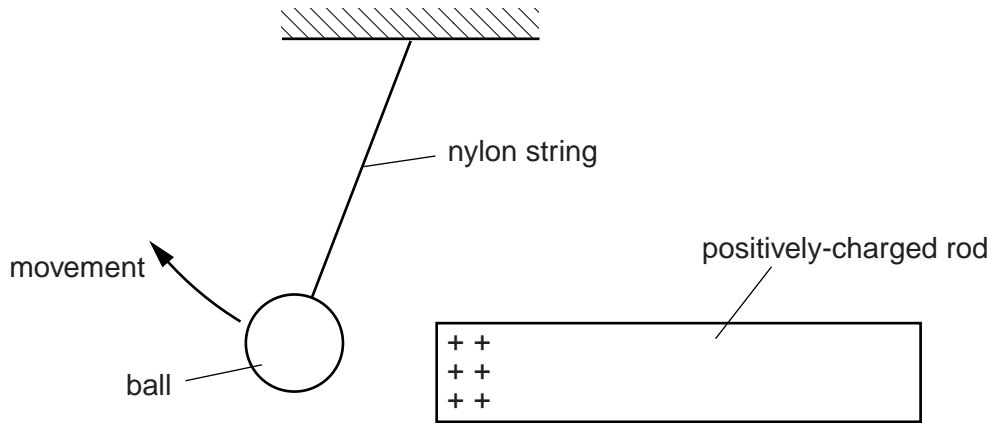


Fig. 11.1

- (a) Explain why the ball moves away from the positively-charged object.

.....  
 ..... [2]

- (b) A spark is seen between two charged objects.

A spark is a flow of charge.

State the name given to the rate of flow of charge.

..... [1]

12 A lamp is marked '240V, 60W'.

(a) The lamp is working normally.

Calculate

(i) the current in the lamp,

current = ..... A [2]

(ii) the electrical energy converted in 10 minutes.

energy = ..... J [2]

(b) Some lamps may produce waves in the infra-red, the visible or the ultraviolet regions of the electromagnetic spectrum.

State the name given to a component of the spectrum with wavelengths that are

(i) longer than those of infra-red radiation, ..... [1]

(ii) shorter than those of ultraviolet radiation. .... [1]

13 Butane, natural gas and petrol are fossil fuels.

(a) Name the main constituent of natural gas. .... [1]

(b) Petrol is a mixture of different hydrocarbons.

Explain the meaning of the term *hydrocarbon*.

.....  
.....  
..... [2]

(c) Balance the equation for the combustion of butane.



(d) Some fossil fuels contain sulfur compounds.

(i) State the name of a compound of sulfur that is formed when these fuels are burned.

..... [1]

(ii) State and explain an environmental problem associated with this compound of sulfur.

.....  
.....  
..... [2]

14 Fig. 14.1 shows part of a food web.

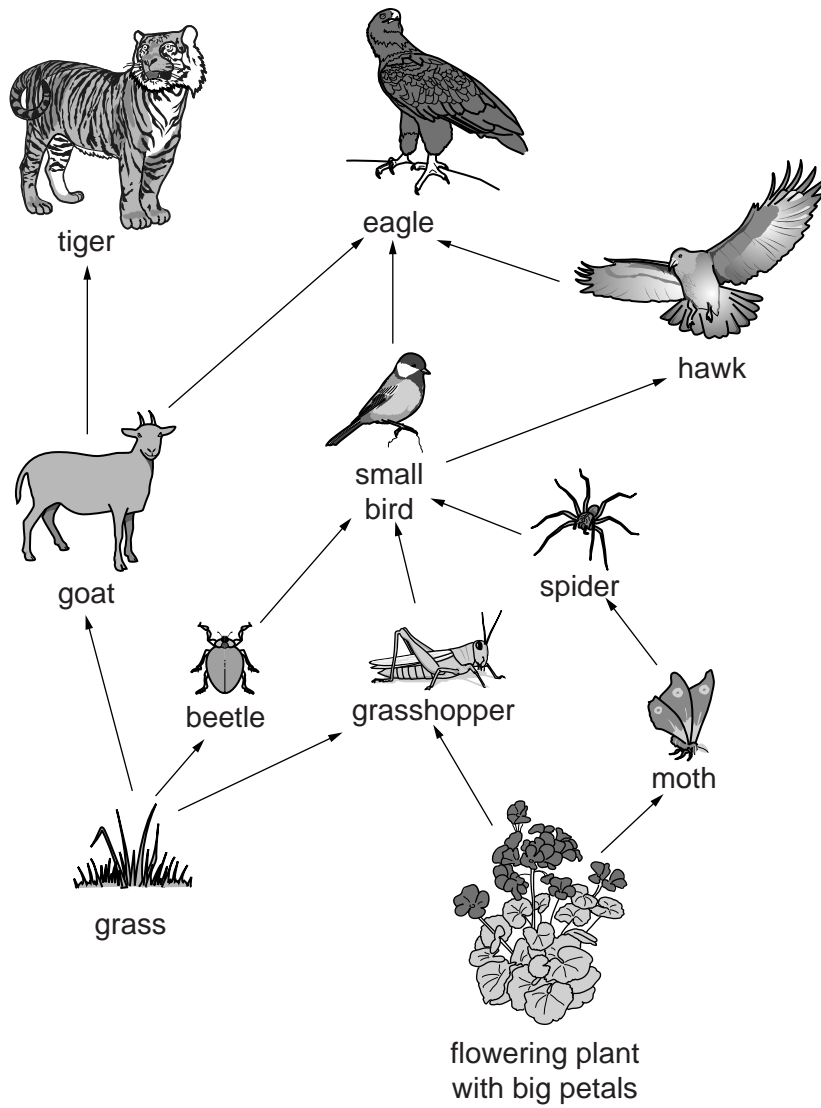


Fig. 14.1

(a) (i) State the source of energy for this food web.

..... [1]

(ii) State the form of this energy.

..... [1]





- (b) (i) State how many species of herbivore and how many species of carnivore shown in the food web.

Write your answers in Table 14.1.

**Table 14.1**

type of organism	number of species
herbivore	
carnivore	

[2]

- (ii) State the number of species in the longest food chain shown in Fig. 14.1.

..... species [1]

- (iii) Explain why a short food chain is more efficient than a long food chain.

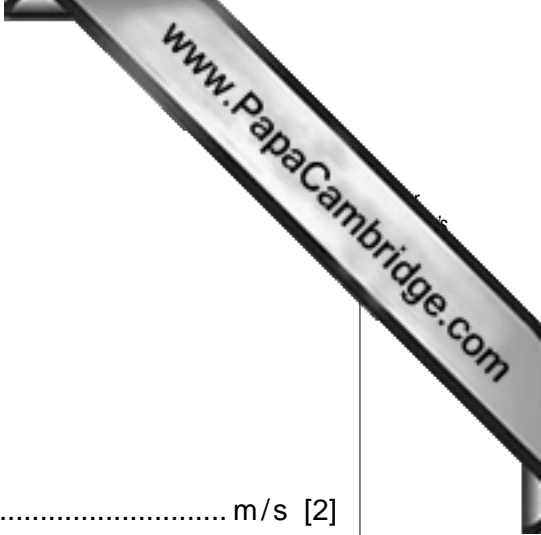
.....  
 .....  
 ..... [2]

- (c) Predict what would happen on the food web if 90% of the moths died. Explain why.

prediction .....

explanation .....

..... [2]



15 An athlete runs on a circular track.

He runs 400 m in 50 s.

(a) Calculate the average speed of the runner.

speed = ..... m/s [2]

(b) The athlete maintains a constant speed on the circular track.

Explain why his velocity is not constant.

.....  
..... [1]

16 Brass and stainless steel are both alloys.

(a) Name the two elements present in brass.

..... and ..... [2]

(b) (i) State one use of stainless steel.

..... [1]

(ii) Explain how and why alloys are made.

.....  
.....  
..... [2]

- 17 (a) Explain what is meant by the *principle of energy conservation*.

.....  
 ..... [1]

- (b) Coal is burned to generate electrical energy.

Complete the following sentences.

The energy in coal is ..... energy.

When coal is burned this energy is converted into ..... energy.

Steam is produced and used to turn a turbine.

The turbine has ..... energy. [3]

- 18 The following is a list of substances.

**aluminium oxide      ammonium sulfate      calcium carbonate**  
**potassium nitrate      sodium hydroxide      sodium oxide**

Use the list to complete the following sentences.

Each substance may be used once, more than once or not at all.

- (a) ..... is used to remove acidic impurities  
 during the extraction of iron in a blast furnace. [1]

- (b) A substance that reacts with both acids and alkalis is  
 ..... [1]

- (c) A substance that contains two of the elements essential for  
 plant growth is ..... [1]

- (d) A substance that reacts with dilute sulphuric acid to produce  
 a colourless gas is ..... [1]

19 Fig. 19.1 shows a basic transformer.

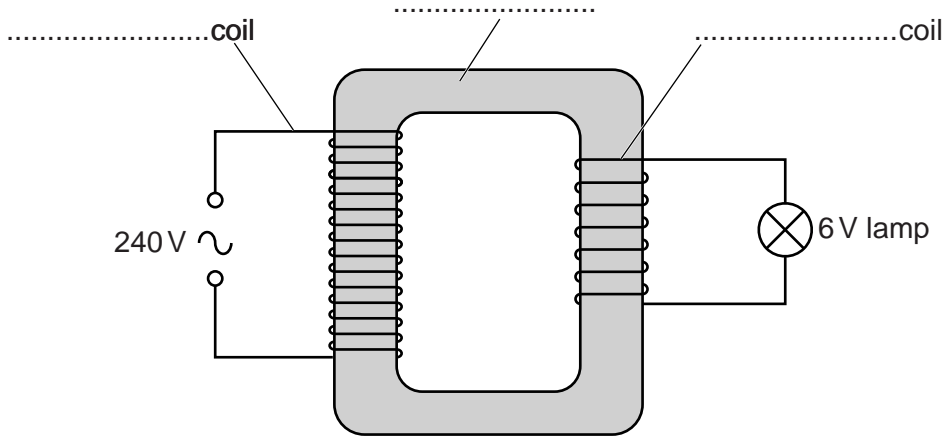


Fig. 19.1

(a) Complete the labels on Fig. 19.1. [2]

(b) The output of a transformer is connected to a lamp.

Explain why the lamp does not light when the input to the transformer is direct current.

.....  
 .....  
 ..... [2]

20 Explain what is meant by the *half-life* of a radioactive source.

.....  
 .....  
 ..... [2]







**DATA SHEET**  
**The Periodic Table of the Elements**

		Group										
I	II	III	IV	V	VI	VII	0					0
7 <b>Li</b> Lithium 4	9 <b>Be</b> Beryllium 4	1 <b>H</b> Hydrogen 1	11 <b>B</b> Boron 5	12 <b>C</b> Carbon 6	13 <b>Al</b> Aluminium 13	14 <b>Si</b> Silicon 14	15 <b>P</b> Phosphorus 15	16 <b>S</b> Sulfur 16	17 <b>Cl</b> Chlorine 17	18 <b>Ar</b> Argon 18	19 <b>F</b> Fluorine 9	20 <b>Ne</b> Neon 10
23 <b>Na</b> Sodium 12	24 <b>Mg</b> Magnesium 12	27 <b>Fe</b> Iron 26	28 <b>Ni</b> Nickel 28	29 <b>Cu</b> Copper 29	30 <b>Zn</b> Zinc 30	31 <b>Ga</b> Gallium 31	32 <b>Ge</b> Germanium 32	33 <b>As</b> Arsenic 33	34 <b>Se</b> Selenium 34	35 <b>Br</b> Bromine 35	36 <b>Kr</b> Krypton 36	40 <b>Ca</b> Calcium 20
39 <b>K</b> Potassium 20	40 <b>Ca</b> Calcium 20	41 <b>Ti</b> Titanium 22	42 <b>Mo</b> Molybdenum 42	43 <b>Tc</b> Technetium 43	44 <b>Ru</b> Ruthenium 44	45 <b>Rh</b> Rhodium 45	46 <b>Pd</b> Palladium 46	47 <b>Ag</b> Silver 47	48 <b>Cd</b> Cadmium 48	49 <b>In</b> Indium 49	50 <b>Sn</b> Tin 50	51 <b>Sb</b> Antimony 51
85 <b>Rb</b> Rubidium 38	86 <b>Sr</b> Strontium 38	87 <b>Y</b> Yttrium 39	88 <b>Zr</b> Zirconium 40	89 <b>Y</b> Yttrium 39	90 <b>Rf</b> Rutherfordium 104	91 <b>Nb</b> Niobium 41	92 <b>Hf</b> Hafnium 72	93 <b>Ta</b> Tantalum 73	94 <b>Rg</b> Roentgenium 108	95 <b>Pt</b> Platinum 78	96 <b>Au</b> Gold 79	97 <b>Hg</b> Mercury 80
133 <b>Cs</b> Caesium 56	137 <b>Ba</b> Barium 56	138 <b>La</b> Lanthanum 57	139 <b>Ce</b> Cerium 58	140 <b>Pr</b> Praseodymium 59	141 <b>Nd</b> Neodymium 60	142 <b>Pm</b> Promethium 61	143 <b>Sm</b> Samarium 62	144 <b>Eu</b> Europium 63	145 <b>Gd</b> Gadolinium 64	146 <b>Tb</b> Terbium 65	147 <b>Dy</b> Dysprosium 66	148 <b>Ho</b> Holmium 67
223 <b>Fr</b> Francium 88	226 <b>Ra</b> Radium 88	227 <b>Ac</b> Actinium 89	228 <b>Th</b> Thorium 90	231 <b>Pa</b> Protactinium 91	232 <b>U</b> Uranium 92	233 <b>Np</b> Neptunium 93	234 <b>Pu</b> Plutonium 94	235 <b>Am</b> Americium 95	236 <b>Cm</b> Curium 96	237 <b>Bk</b> Berkelium 97	238 <b>Cf</b> Californium 98	239 <b>Es</b> Einsteinium 99
287 <b>Uu</b> Ununseptium 117	288 <b>Uub</b> Ununbium 118	289 <b>Uut</b> Ununtrium 119	290 <b>Uuq</b> Ununquadium 120	291 <b>Uuq</b> Ununquadium 120	292 <b>Uub</b> Ununbium 118	293 <b>Uut</b> Ununtrium 119	294 <b>Uuq</b> Ununquadium 120	295 <b>Uub</b> Ununbium 118	296 <b>Uut</b> Ununtrium 119	297 <b>Uuq</b> Ununquadium 120	298 <b>Uub</b> Ununbium 118	299 <b>Uut</b> Ununtrium 119
58 <b>Ce</b> Cerium 58	59 <b>Pr</b> Praseodymium 59	60 <b>Nd</b> Neodymium 60	61 <b>Pm</b> Promethium 61	62 <b>Sm</b> Samarium 62	63 <b>Eu</b> Europium 63	64 <b>Gd</b> Gadolinium 64	65 <b>Tb</b> Terbium 65	66 <b>Dy</b> Dysprosium 66	67 <b>Ho</b> Holmium 67	68 <b>Er</b> Erbium 68	69 <b>Tm</b> Thulium 69	70 <b>Yb</b> Ytterbium 70
71 <b>Lu</b> Lutetium 71	72 <b>Hf</b> Hafnium 72	73 <b>Ta</b> Tantalum 73	74 <b>W</b> Tungsten 74	75 <b>Re</b> Rhenium 75	76 <b>Os</b> Osmium 76	77 <b>Ir</b> Iridium 77	78 <b>Pt</b> Platinum 78	79 <b>Au</b> Gold 79	80 <b>Hg</b> Mercury 80	81 <b>Tl</b> Thallium 81	82 <b>Pb</b> Lead 82	83 <b>Bi</b> Bismuth 83
84 <b>Po</b> Polonium 84	85 <b>At</b> Astatine 85	86 <b>Rn</b> Radon 86	87 <b>Fr</b> Francium 87	88 <b>Ra</b> Radium 88	89 <b>Ac</b> Actinium 89	90 <b>Th</b> Thorium 90	91 <b>Pa</b> Protactinium 91	92 <b>U</b> Uranium 92	93 <b>Np</b> Neptunium 93	94 <b>Pu</b> Plutonium 94	95 <b>Am</b> Americium 95	96 <b>Cm</b> Curium 96
97 <b>Bk</b> Berkelium 97	98 <b>Cf</b> Californium 98	99 <b>Es</b> Einsteinium 99	100 <b>Fm</b> Fermium 100	101 <b>Md</b> Mendelevium 101	102 <b>No</b> Nobelium 102	103 <b>Lr</b> Lawrencium 103	104 <b>Rf</b> Rutherfordium 104	105 <b>Db</b> Dubnium 105	106 <b>Sg</b> Seaborgium 106	107 <b>Bh</b> Bohrium 107	108 <b>Hs</b> Hassium 108	109 <b>Mt</b> Meitnerium 109
110 <b>Ds</b> Darmstadtium 110	111 <b>Rg</b> Roentgenium 111	112 <b>Cn</b> Copernicium 112	113 <b>Nh</b> Nihonium 113	114 <b>Fl</b> Flerovium 114	115 <b>Mc</b> Moscovium 115	116 <b>Lv</b> Livermorium 116	117 <b>Uu</b> Ununseptium 117	118 <b>Uub</b> Ununbium 118	119 <b>Uut</b> Ununtrium 119	120 <b>Uuq</b> Ununquadium 120	121 <b>Uub</b> Ununbium 118	122 <b>Uut</b> Ununtrium 119
123 <b>Uuq</b> Ununquadium 120	124 <b>Uub</b> Ununbium 118	125 <b>Uut</b> Ununtrium 119	126 <b>Uuq</b> Ununquadium 120	127 <b>Uub</b> Ununbium 118	128 <b>Uut</b> Ununtrium 119	129 <b>Uuq</b> Ununquadium 120	130 <b>Uub</b> Ununbium 118	131 <b>Uut</b> Ununtrium 119	132 <b>Uuq</b> Ununquadium 120	133 <b>Uub</b> Ununbium 118	134 <b>Uut</b> Ununtrium 119	135 <b>Uuq</b> Ununquadium 120
136 <b>Uub</b> Ununbium 118	137 <b>Uut</b> Ununtrium 119	138 <b>Uuq</b> Ununquadium 120	139 <b>Uub</b> Ununbium 118	140 <b>Uut</b> Ununtrium 119	141 <b>Uuq</b> Ununquadium 120	142 <b>Uub</b> Ununbium 118	143 <b>Uut</b> Ununtrium 119	144 <b>Uuq</b> Ununquadium 120	145 <b>Uub</b> Ununbium 118	146 <b>Uut</b> Ununtrium 119	147 <b>Uuq</b> Ununquadium 120	148 <b>Uub</b> Ununbium 118
149 <b>Uut</b> Ununtrium 119	150 <b>Uuq</b> Ununquadium 120	151 <b>Uub</b> Ununbium 118	152 <b>Uut</b> Ununtrium 119	153 <b>Uuq</b> Ununquadium 120	154 <b>Uub</b> Ununbium 118	155 <b>Uut</b> Ununtrium 119	156 <b>Uuq</b> Ununquadium 120	157 <b>Uub</b> Ununbium 118	158 <b>Uut</b> Ununtrium 119	159 <b>Uuq</b> Ununquadium 120	160 <b>Uub</b> Ununbium 118	161 <b>Uut</b> Ununtrium 119
162 <b>Uuq</b> Ununquadium 120	163 <b>Uub</b> Ununbium 118	164 <b>Uut</b> Ununtrium 119	165 <b>Uuq</b> Ununquadium 120	166 <b>Uub</b> Ununbium 118	167 <b>Uut</b> Ununtrium 119	168 <b>Uuq</b> Ununquadium 120	169 <b>Uub</b> Ununbium 118	170 <b>Uut</b> Ununtrium 119	171 <b>Uuq</b> Ununquadium 120	172 <b>Uub</b> Ununbium 118	173 <b>Uut</b> Ununtrium 119	174 <b>Uuq</b> Ununquadium 120
175 <b>Lu</b> Lutetium 71	176 <b>Hf</b> Hafnium 72	177 <b>Ta</b> Tantalum 73	178 <b>W</b> Tungsten 74	179 <b>Re</b> Rhenium 75	180 <b>Os</b> Osmium 76	181 <b>Ir</b> Iridium 77	182 <b>Pt</b> Platinum 78	183 <b>Au</b> Gold 79	184 <b>Hg</b> Mercury 80	185 <b>Tl</b> Thallium 81	186 <b>Pb</b> Lead 82	187 <b>Bi</b> Bismuth 83
188 <b>Po</b> Polonium 84	189 <b>At</b> Astatine 85	190 <b>Rn</b> Radon 86	191 <b>Fr</b> Francium 87	192 <b>Ra</b> Radium 88	193 <b>Ac</b> Actinium 89	194 <b>Th</b> Thorium 90	195 <b>Pa</b> Protactinium 91	196 <b>U</b> Uranium 92	197 <b>Np</b> Neptunium 93	198 <b>Pu</b> Plutonium 94	199 <b>Am</b> Americium 95	200 <b>Cm</b> Curium 96
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214 <b>Ds</b> Darmstadtium 110	215 <b>Rg</b> Roentgenium 111	216 <b>Cn</b> Copernicium 112	217 <b>Nh</b> Nihonium 113	218 <b>Fl</b> Flerovium 114	219 <b>Mc</b> Moscovium 115	220 <b>Lv</b> Livermorium 116	221 <b>Uu</b> Ununseptium 117	222 <b>Uub</b> Ununbium 118	223 <b>Uut</b> Ununtrium 119	224 <b>Uuq</b> Ununquadium 120	225 <b>Uub</b> Ununbium 118	226 <b>Uut</b> Ununtrium 119
227 <b>Uuq</b> Ununquadium 120	228 <b>Uub</b> Ununbium 118	229 <b>Uut</b> Ununtrium 119	230 <b>Uuq</b> Ununquadium 120	231 <b>Uub</b> Ununbium 118	232 <b>Uut</b> Ununtrium 119	233 <b>Uuq</b> Ununquadium 120	234 <b>Uub</b> Ununbium 118	235 <b>Uut</b> Ununtrium 119	236 <b>Uuq</b> Ununquadium 120	237 <b>Uub</b> Ununbium 118	238 <b>Uut</b> Ununtrium 119	239 <b>Uuq</b> Ununquadium 120
240 <b>Uub</b> Ununbium 118	241 <b>Uut</b> Ununtrium 119	242 <b>Uuq</b> Ununquadium 120	243 <b>Uub</b> Ununbium 118	244 <b>Uut</b> Ununtrium 119	245 <b>Uuq</b> Ununquadium 120	246 <b>Uub</b> Ununbium 118	247 <b>Uut</b> Ununtrium 119	248 <b>Uuq</b> Ununquadium 120	249 <b>Uub</b> Ununbium 118	250 <b>Uut</b> Ununtrium 119	251 <b>Uuq</b> Ununquadium 120	252 <b>Uub</b> Ununbium 118
253 <b>Uut</b> Ununtrium 119	254 <b>Uuq</b> Ununquadium 120	255 <b>Uub</b> Ununbium 118	256 <b>Uut</b> Ununtrium 119	257 <b>Uuq</b> Ununquadium 120	258 <b>Uub</b> Ununbium 118	259 <b>Uut</b> Ununtrium 119	260 <b>Uuq</b> Ununquadium 120	261 <b>Uub</b> Ununbium 118	262 <b>Uut</b> Ununtrium 119	263 <b>Uuq</b> Ununquadium 120	264 <b>Uub</b> Ununbium 118	265 <b>Uut</b> Ununtrium 119
266 <b>Uuq</b> Ununquadium 120	267 <b>Uub</b> Ununbium 118	268 <b>Uut</b> Ununtrium 119	269 <b>Uuq</b> Ununquadium 120	270 <b>Uub</b> Ununbium 118	271 <b>Uut</b> Ununtrium 119	272 <b>Uuq</b> Ununquadium 120	273 <b>Uub</b> Ununbium 118	274 <b>Uut</b> Ununtrium 119	275 <b>Uuq</b> Ununquadium 120	276 <b>Uub</b> Ununbium 118	277 <b>Uut</b> Ununtrium 119	278 <b>Uuq</b> Ununquadium 120
279 <b>Uub</b> Ununbium 118	280 <b>Uut</b> Ununtrium 119	281 <b>Uuq</b> Ununquadium 120	282 <b>Uub</b> Ununbium 118	283 <b>Uut</b> Ununtrium 119	284 <b>Uuq</b> Ununquadium 120	285 <b>Uub</b> Ununbium 118	286 <b>Uut</b> Ununtrium 119	287 <b>Uuq</b> Ununquadium 120	288 <b>Uub</b> Ununbium 118	289 <b>Uut</b> Ununtrium 119	290 <b>Uuq</b> Ununquadium 120	291 <b>Uub</b> Ununbium 118
292 <b>Uut</b> Ununtrium 119	293 <b>Uuq</b> Ununquadium 120	294 <b>Uub</b> Ununbium 118	295 <b>Uut</b> Ununtrium 119	296 <b>Uuq</b> Ununquadium 120	297 <b>Uub</b> Ununbium 118	298 <b>Uut</b> Ununtrium 119	299 <b>Uuq</b> Ununquadium 120	300 <b>Uub</b> Ununbium 118	301 <b>Uut</b> Ununtrium 119	302 <b>Uuq</b> Ununquadium 120	303 <b>Uub</b> Ununbium 118	304 <b>Uut</b> Ununtrium 119
305 <b>Uuq</b> Ununquadium 120	306 <b>Uub</b> Ununbium 118	307 <b>Uut</b> Ununtrium 119	308 <b>Uuq</b> Ununquadium 120	309 <b>Uub</b> Ununbium 118	310 <b>Uut</b> Ununtrium 119	311 <b>Uuq</b> Ununquadium 120	312 <b>Uub</b> Ununbium 118	313 <b>Uut</b> Ununtrium 119	314 <b>Uuq</b> Ununquadium 120	315 <b>Uub</b> Ununbium 118	316 <b>Uut</b> Ununtrium 119	317 <b>Uuq</b> Ununquadium 120
318 <b>Uub</b> Ununbium 118	319 <b>Uut</b> Ununtrium 119	320 <b>Uuq</b> Ununquadium 120	321 <b>Uub</b> Ununbium 118	322 <b>Uut</b> Ununtrium 119	323 <b>Uuq</b> Ununquadium 120	324 <b>Uub</b> Ununbium 118	325 <b>Uut</b> Ununtrium 119	326 <b>Uuq</b> Ununquadium 120	327 <b>Uub</b> Ununbium 118	328 <b>Uut</b> Ununtrium 119	329 <b>Uuq</b> Ununquadium 120	330 <b>Uub</b> Ununbium 118
331 <b>Uut</b> Ununtrium 119	332 <b>Uuq</b> Ununquadium 120	333 <b>Uub</b> Ununbium 118	334 <b>Uut</b> Ununtrium 119	335 <b>Uuq</b> Ununquadium 120	336 <b>Uub</b> Ununbium 118	337 <b>Uut</b> Ununtrium 119	338 <b>Uuq</b> Ununquadium 120	339 <b>Uub</b> Ununbium 118	340 <b>Uut</b> Ununtrium 119	341 <b>Uuq</b> Ununquadium 120	342 <b>Uub</b> Ununbium 118	343 <b>Uut</b> Ununtrium 119
344 <b>Uuq</b> Ununquadium 120	345 <b>Uub</b> Ununbium 118	346 <b>Uut</b> Ununtrium 119	347 <b>Uuq</b> Ununquadium 120	348 <b>Uub</b> Ununbium 118	349 <b>Uut</b> Ununtrium 119	350 <b>Uuq</b> Ununquadium 120	351 <b>Uub</b> Ununbium 118	352 <b>Uut</b> Ununtrium 119	353 <b>Uuq</b> Ununquadium 120	354 <b>Uub</b> Ununbium 118	355 <b>Uut</b> Ununtrium 119	356 <b>Uuq</b> Ununquadium 120
357 <b>Uub</b> Ununbium 118	358 <b>Uut</b> Ununtrium 119	359 <b>Uuq</b> Ununquadium 120	360 <b>Uub</b> Ununbium 118	361 <b>Uut</b> Ununtrium 119	362 <b>Uuq</b> Ununquadium 120	363 <b>Uub</b> Ununbium 118	364 <b>Uut</b> Ununtrium 119	365 <b>Uuq</b> Ununquadium 120	366 <b>Uub</b> Ununbium 118	367 <b>Uut</b> Ununtrium 119	368 <b>Uuq</b> Ununquadium 120	369 <b>Uub</b> Ununbium 118
370 <b>Uut</b> Ununtrium 119	371 <b>Uuq</b> Ununquadium 120	372 <b>Uub</b> Ununbium 118	373 <b>Uut</b> Ununtrium 119	374 <b>Uuq</b> Ununquadium 120	375 <b>Uub</b> Ununbium 118	376 <b>Uut</b> Ununtrium 119	377 <b>Uuq</b> Ununquadium 120	378 <b>Uub</b> Ununbium 118	379 <b>Uut</b> Ununtrium 119	380 <b>Uuq</b> Ununquadium 120	381 <b>Uub</b> Ununbium 118	382 <b>Uut</b> Ununtrium 119
383 <b>Uuq</b> Ununquadium 120	384 <b>Uub</b> Ununbium 118	385 <b>Uut</b> Ununtrium 119	386 <b>Uuq</b> Ununquadium 120	387 <b>Uub</b> Ununbium 118	388 <b>Uut</b> Ununtrium 119	389 <b>Uuq</b> Ununquadium 120	390 <b>Uub</b> Ununbium 118	391 <b>Uut</b> Ununtrium 119	392 <b>Uuq</b> Ununquadium 120	393 <b>Uub</b> Ununbium 118	394 <b>Uut</b> Ununtrium 119	395 <b>Uuq</b> Ununquadium 120
396 <b>Uub</b> Ununbium 118	397 <b>Uut</b> Ununtrium 119	398 <b>Uuq</b> Ununquadium 120	399 <b>Uub</b> Ununbium 118	400 <								