



EXAMINATIONS COUNCIL OF SWAZILAND
in collaboration with
UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE
Swaziland General Certificate of Secondary Education

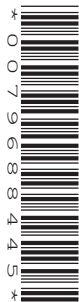
CANDIDATE
NAME

CENTRE
NUMBER

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NUMBER

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COMBINED SCIENCE

6886/01

Paper 1 (Short Answers)

October/November 2012

1 hour

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, tables or rough working.

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

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

A copy of the Periodic Table is printed on page 12.

You may use a calculator.

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 **10** printed pages and **2** blank pages.

For question 1 and 2, circle the letter by the correct answer.

1 Which group of organs belongs to the same organ system?

- A heart, liver, lungs
- B windpipe, oesophagus, diaphragm
- C heart, stomach, windpipe
- D oesophagus, stomach, intestine

[1]

2 Fig. 2.1 shows a motor lifting a load.

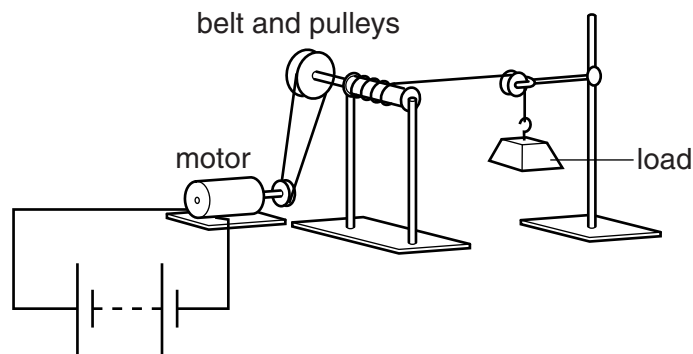


Fig. 2.1

Which shows the energy conversions occurring as the motor lifts the load?

- A chemical → kinetic → electrical → potential
- B electrical → chemical → kinetic → sound
- C chemical → electrical → kinetic → potential
- D kinetic → mechanical → electrical → potential

[1]

3 Sodium (${}_{11}^{23}\text{Na}$) is found in Group I of the Periodic Table.

(a) State the number of electrons in a sodium ion.

.....[1]

(b) Write the formula for a sodium ion.

.....[1]

- 4 Fig. 4.1 shows part of the human alimentary canal.

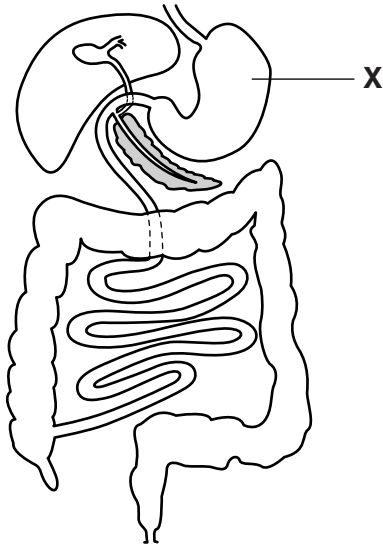


Fig. 4.1

- (a) Name an enzyme that is produced in the part labelled X.

..... [1]

- (b) Label the ileum on Fig. 4.1.

[1]

- 5 A metal block has a mass of 20 kg.

Calculate its weight.

(Use $g = 10 \text{ N/kg}$)

..... [2]

- 6 Fig. 6.1 shows apparatus used to separate a mixture of water and ethanol.

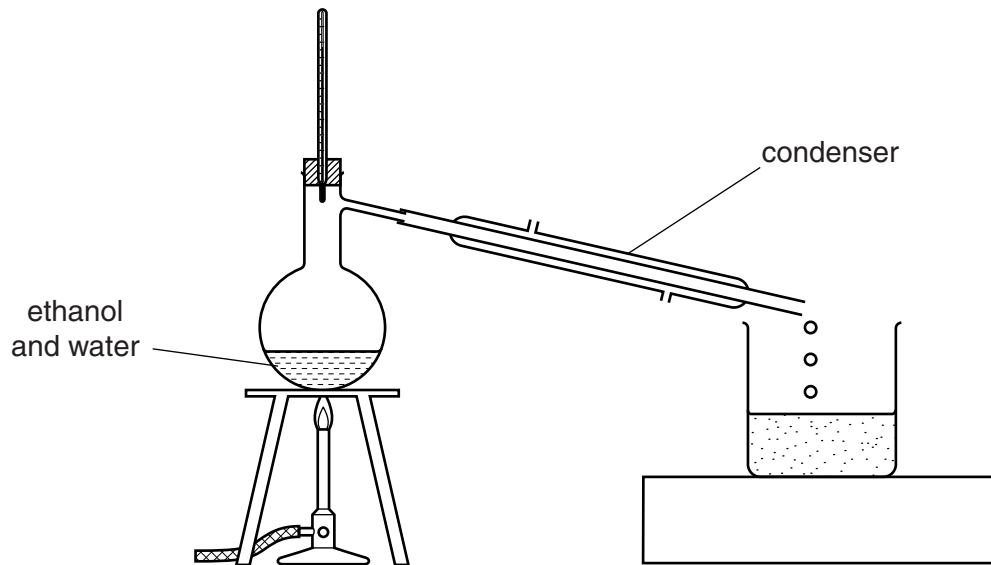


Fig. 6.1

Name the separation method shown in Fig. 6.1.

.....[1]

- 7 Themba used a certain drug for the first time.

Define the term *drug*.

.....[1]

- 8 Name the nuclear radiation that is partially absorbed by a few millimetres of lead.

.....[1]

9 Fig. 9.1 shows plants that have grown from the same stem.

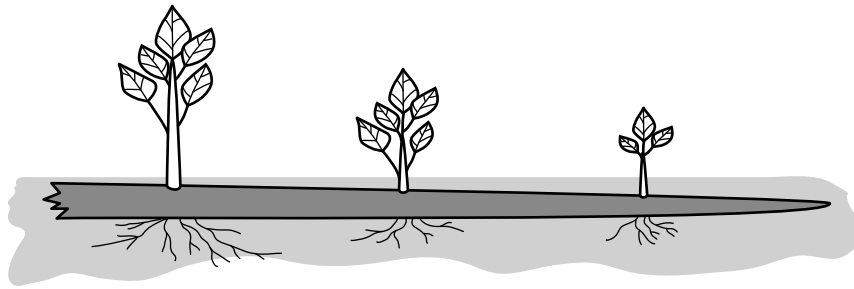


Fig. 9.1

Name the type of reproduction shown in Fig. 9.1.

.....[1]

10 State the relationship between average speed, time and distance.

.....[1]

11 Fig. 11.1 shows the changes undergone by water during heating.

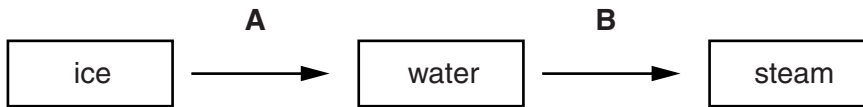


Fig. 11.1

Name processes **A** and **B**.

process **A** [1]

process **B** [1]

12 A certain plant bears purple flowers. The flowers have a sweet scent. They also produce a sugary liquid.

(a) State the agent of pollination for this flower.

.....[1]

(b) State the role of the sweet scent in the pollination of the flower.

.....[1]

- 13 A mixture of powdered chalk and sugar can easily be separated.

State the physical property that makes the separation possible.

.....[1]

- 14 Describe what would happen when a red blood cell is placed in pure water for about 20 minutes.

.....[1]

- 15 Fig. 15.1 shows a longitudinal section of a vacuum flask.

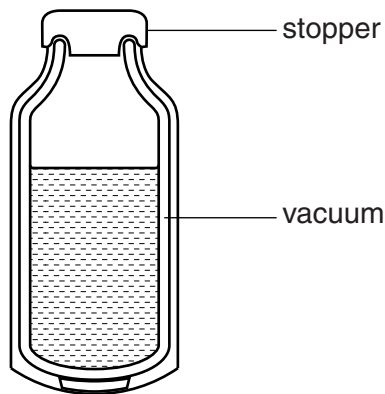


Fig. 15.1

Describe how the vacuum prevents heat loss.

.....[1]

- 16 Carbon, copper, iodine, iron and sodium are elements found in the Periodic Table.

Name the nonmetals in this list.

.....[1]

- 17 Study the food chain below.

grass → goat → lion → vulture

Name the primary consumer in this food chain.

.....[1]

- 18 State one example of a longitudinal wave.

.....[1]

- 19 Nelly collected grass and splints of wood to start a fire.

Explain why she used splints and not thick blocks of wood to start the fire.

.....[1]

- 20 Name one chemical process which is carried out by green plants and **not** by animals.

.....[1]

- 21 Describe one property of magnets.

.....[1]

- 22 State the number of elements in the compound whose formula is NaOH.

.....[1]

- 23 Fig. 23.1 shows a potted plant growing in a cupboard.

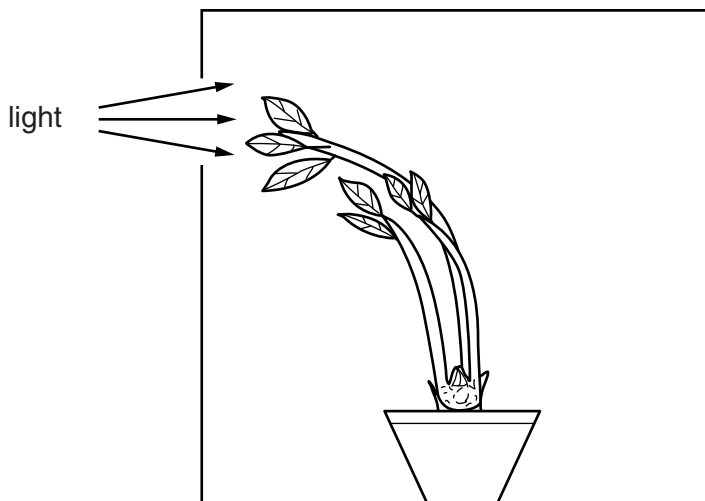


Fig. 23.1

State the characteristic of living organisms shown in Fig. 23.1.

.....[1]

- 24 Complete the following sentences.

(a) The unit of charge is the[1]

(b) The rate of flow of charge is the definition of[1]

- 25 Calcium oxide, carbon dioxide, copper oxide, lithium oxide, nitrogen oxide, phosphorus oxide and sulfur dioxide are oxides of elements.

Name the acidic oxides in this list.

.....[2]

- 26 State the function of a cell membrane.

.....[1]

- 27 Fig. 27.1 shows how Musa measured the internal diameter of a metal pipe using a small ruler.

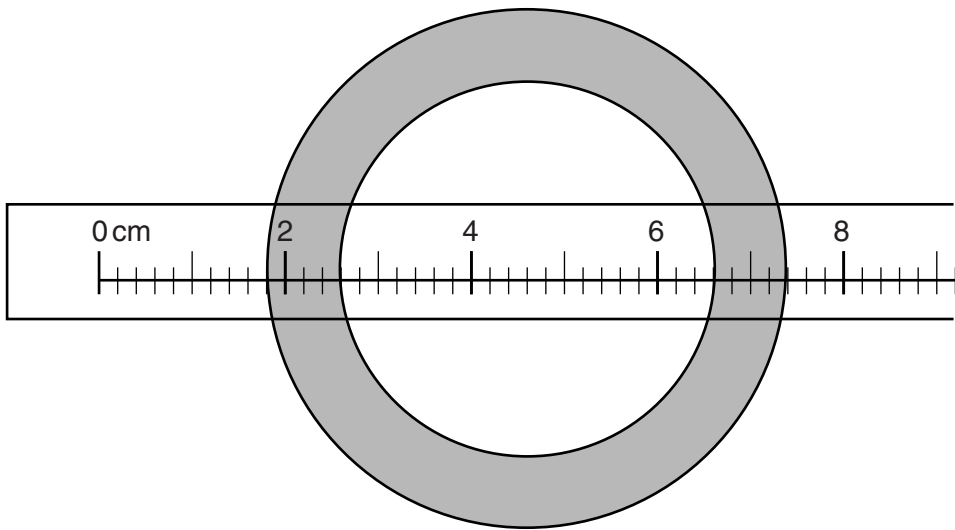


Fig. 27.1

State the internal diameter of the pipe using the correct unit.

.....[1]

- 28 Two substances are mixed in a boiling tube and a gas is produced. When a damp red litmus paper is placed at the mouth of the tube it turns blue.

Name the gas produced.

.....[1]

- 29 State the name of the proteins which function as biological catalysts in the body.

.....[1]

- 30 Name the instrument used to measure current in a circuit.

.....[1]

31 Name the two elements used to make mild steel.

1[1]

2[1]

32 The frequency of a sound wave is increased.

Describe the effect this change will have on the sound heard by a listener.

.....[1]

DATA SHEET
The Periodic Table of the Elements

		Group																		
I	II	III	IV	V	VI	VII	O													
		1 H Hydrogen 1										4 He Helium 2								
7 Li Lithium 3	9 Be Beryllium 4												19 F Fluorine 9	16 O Oxygen 8	14 N Nitrogen 7	20 Ne Neon 10				
23 Na Sodium 11	24 Mg Magnesium 12												35.5 Cl Chlorine 17	32 S Sulfur 16	31 P Phosphorus 15	40 Ar Argon 18				
39 K Potassium 19	40 Ca Calcium 20												73 Ge Germanium 32	79 Se Selenium 34	75 As Arsenic 33	84 Kr Krypton 36				
85 Rb Rubidium 37	88 Sr Strontium 38												108 Ag Silver 47	112 Cd Cadmium 48	115 In Indium 49	131 Xe Xenon 54				
133 Cs Caesium 55	137 Ba Barium 56												197 Au Gold 79	201 Hg Mercury 80	204 Tl Thallium 81	222 Rn Radon 86				
223 Fr Francium 87	226 Ra Radium 88												152 Eu Europium 63	157 Gd Gadolinium 64	167 Er Erbium 68	227 Ac Actinium 89				
* 58–71 Lanthanoid series																				
† 90–103 Actinoid series																				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 5px;"> <table style="border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">a</td> <td style="padding: 2px 5px;">X</td> </tr> <tr> <td style="padding: 2px 5px;">b</td> <td style="padding: 2px 5px;"></td> </tr> </table> </div> <div style="text-align: right;"> <p>a = relative atomic mass X = atomic symbol b = atomic (proton) number</p> </div> </div>																	a	X	b	
a	X																			
b																				
140 Ce Cerium 58	141 Pr Praseodymium 59	144 Nd Neodymium 60	150 Sm Samarium 62	152 Eu Europium 63	157 Gd Gadolinium 64	162 Dy Dysprosium 66	165 Ho Holmium 67	167 Er Erbium 68	169 Tm Thulium 69	173 Yb Ytterbium 70	175 Lu Lutetium 71		232 Th Thorium 90	231 Pa Protactinium 91	238 U Uranium 92	244 Pu Plutonium 94	247 Bk Berkelium 97			
147 Pm Promethium 61	147 Pm Promethium 61	147 Pm Promethium 61	150 Sm Samarium 62	152 Eu Europium 63	157 Gd Gadolinium 64	162 Dy Dysprosium 66	165 Ho Holmium 67	167 Er Erbium 68	169 Tm Thulium 69	173 Yb Ytterbium 70	175 Lu Lutetium 71		251 Cf Californium 98	257 Fm Fermium 100	258 Md Mendelevium 101	259 No Nobelium 102	260 Lr Lawrencium 103			

The volume of one mole of any gas is 24 dm³ at room temperature and pressure (r.t.p.).