EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

PHYSICAL SCIENCE **6888/01**

Paper 1 Short Answers **October/November 2019**

1 hour

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and candidate name on the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs, tables or rough working.
Do **not** use staples, paper clips, highlighters, glue or correction fluid.
Do **not** write in any barcodes.

Answer **all** questions.

You may use an electronic calculator.
You may lose marks if you do not show your working or if you do not use the appropriate units.
A copy of the Periodic Table is printed on page 12.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use

This document consists of **12** printed pages and **4** blank pages.

[Turn over

1 Which quantity is measured using a spring balance?

Circle the letter with the correct answer.

A density
B distance
C energy
D weight [1]

2 Amino acids are colourless and can be separated by the method shown in Fig. 2.1.

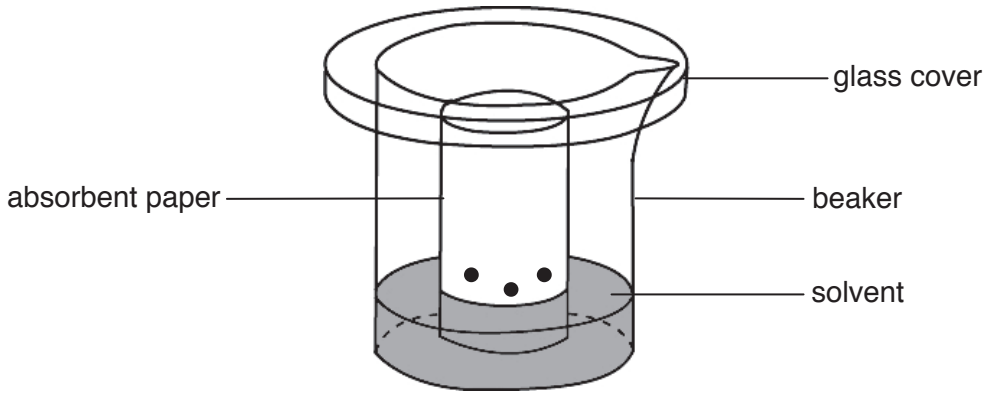


Fig. 2.1

(a) Name the method shown in Fig. 2.1.

..... [1]

(b) State the additional substance needed to identify the colourless amino acids.

..... [1]

3 A car moves a distance of 100 metres in 3 seconds.

Calculate the average speed of the car.

..... m/s [2]

4 Hydrogen burns in air to form water.

Explain why the burning of hydrogen is a chemical change.

.....

..... [1]

5 Fig. 5.1 shows the speed-time graph of a heavy box falling from an aeroplane.

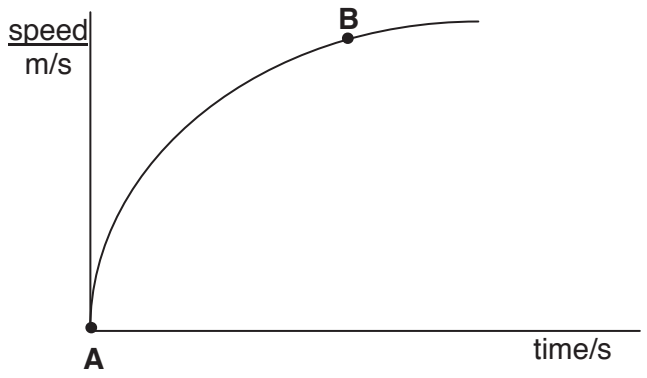


Fig. 5.1

Describe the motion of the box between **A** and **B**.

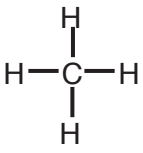
.....

..... [2]

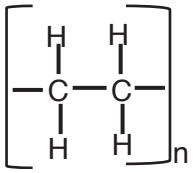
6 Answer the questions using the letters **A**, **B**, **C** or **D**.

You may use each letter once, more than once or not at all.

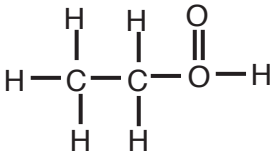
A



B



C



D

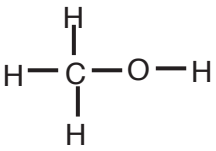


Fig. 6.1

Which of these organic compounds

(a) is in the same homologous series as hexane.....

(b) form an ester .....

(c) is used in the manufacture of plastics ..... [3]

7 Fig.7.1 shows a three pin plug with the pins facing you.

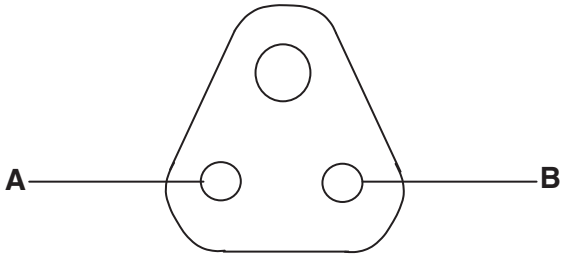


Fig. 7.1

Name the parts labelled **A** and **B**.

A .....

B ..... [2]

8 Explain, using the kinetic particle theory of matter, why a liquid can flow but a solid cannot.

.....

.....

..... [2]

9 State **one** use of gamma radiation.

..... [1]

10 Table 10.1 shows some air pollutants and their sources.

Table 10.1

pollutant	source
chlorofluorocarbons	aerosol sprays
A	car exhausts
carbon monoxide	**B**

Name **one** pollutant **A** and **one** source **B** in Table 10.1.

pollutant **A**.....

source **B**..... [2]

[Turn over

11 Fig. 11.1 shows a student holding a pendulum bob against his nose.

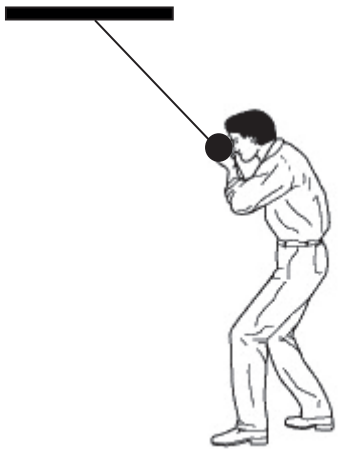


Fig. 11.1

He releases the pendulum bob to swing freely away and back to his nose and does not change his position.

Explain, in terms of energy changes, why the pendulum bob will not hit his nose.

.....

.....

..... [2]

12 Brass is an alloy that contains 70% copper and 30% zinc.

Explain why brass is stronger than copper or zinc.

.....

.....

..... [2]

13 Fig. 13.1 shows a ray of light incident to a glass block at an angle of 60°.

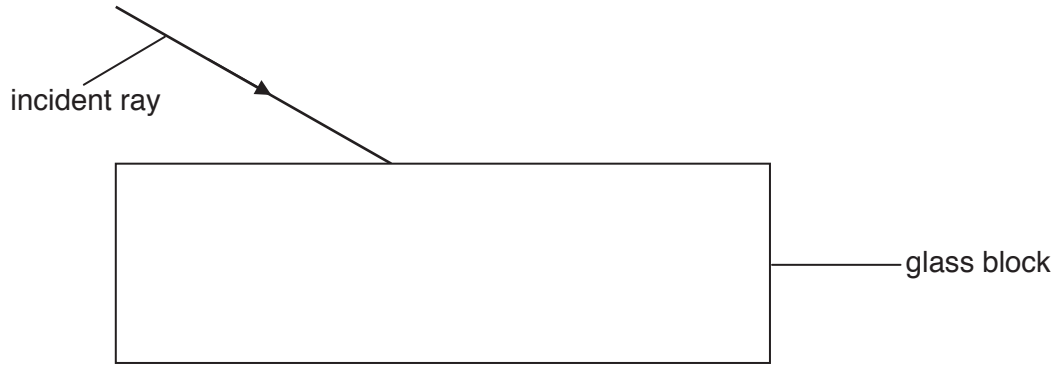


Fig. 13.1

(a) Draw and label the angle of incidence, on Fig. 13.1. [1]

(b) The angle of refraction is 35.3°.

Calculate the refractive index of the glass block.

..... [2]

[Turn over

14 Fig. 14.1 shows apparatus used to electroplate an iron nail with copper metal.

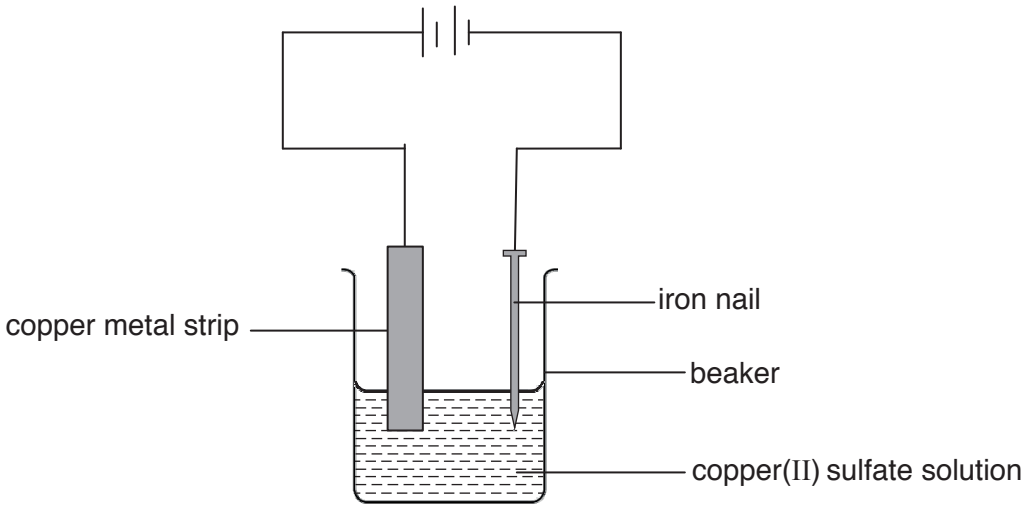


Fig. 14.1

(a) Name the cathode in Fig. 14.1.

..... [1]

(b) The reaction that occurs at one of the electrodes is represented by the following equation:

$Cu \longrightarrow Cu^{2+} + 2e-$

Explain oxidation using this equation.

.....

.....

..... [2]

15 Lunga carries a uniform log on his shoulder.

He adjusts the log such that it balances horizontally on his shoulder as shown in Fig. 15.1.

Fig. 15.1

(a) Explain why the log balances on his shoulder.

..... [1]

(b) The mass of the log is 30 kg.

Calculate its weight.

[g = 10 N/kg]

..... [2]

16 Choose from the list below, to match the given description.

compound	element	ion
mixture	atom	

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

Suggest a substance that

(a) is a unit of matter,

.....

(b) has a non-zero electrical charge,

.....

(c) is made from elements chemically bonded together.

..... [3]

17 Fig. 17.1 shows a bar magnet.

Fig. 17.1

Complete Fig. 17.1 by drawing magnetic field lines around the bar magnet. [2]

18 Some parts of the exhaust system of a car are made from galvanised steel.

Describe how galvanising prevents steel from rusting.

.....

.....

..... [2]

19 Fig. 19.1 shows vernier callipers used to measure the length of a cuboid.

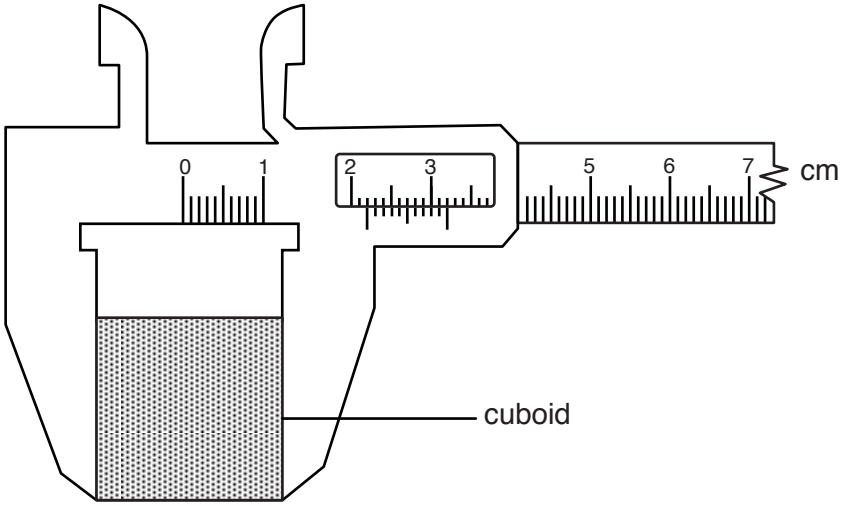


Fig. 19.1

Determine the length of the cuboid.

.....cm [2]

DATA SHEET
The Periodic Table of the Elements

Group																	
I	II										III	IV	V	VI	VII	0
							1 H Hydrogen 1									4 He Helium 2
7 Li Lithium 3	9 Be Beryllium 4										11 B Boron 5	12 C Carbon 6	14 N Nitrogen 7	16 O Oxygen 8	19 F Fluorine 9	20 Ne Neon 10
23 Na Sodium 11	24 Mg Magnesium 12										27 Al Aluminium 13	28 Si Silicon 14	31 P Phosphorus 15	32 S Sulfur 16	35.5 Cl Chlorine 17	40 Ar Argon 18
39 K Potassium 19	40 Ca Calcium 20	45 Sc Scandium 21	48 Ti Titanium 22	51 V Vanadium 23	52 Cr Chromium 24	55 Mn Manganese 25	56 Fe Iron 26	59 Co Cobalt 27	59 Ni Nickel 28	64 Cu Copper 29	65 Zn Zinc 30	70 Ga Gallium 31	73 Ge Germanium 32	75 As Arsenic 33	79 Se Selenium 34	80 Br Bromine 35	84 Kr Krypton 36
85 Rb Rubidium 37	88 Sr Strontium 38	89 Y Yttrium 39	91 Zr Zirconium 40	93 Nb Niobium 41	96 Mo Molybdenum 42	Tc Technetium 43	101 Ru Ruthenium 44	103 Rh Rhodium 45	106 Pd Palladium 46	108 Ag Silver 47	112 Cd Cadmium 48	115 In Indium 49	119 Sn Tin 50	122 Sb Antimony 51	128 Te Tellurium 52	127 I Iodine 53	131 Xe Xenon 54
133 Cs Caesium 55	137 Ba Barium 56	139 La Lanthanum 57 *	178 Hf Hafnium 72	181 Ta Tantalum 73	184 W Tungsten 74	186 Re Rhenium 75	190 Os Osmium 76	192 Ir Iridium 77	195 Pt Platinum 78	197 Au Gold 79	201 Hg Mercury 80	204 Tl Thallium 81	207 Pb Lead 82	209 Bi Bismuth 83	209 Po Polonium 84	210 At Astatine 85	222 Rn Radon 86
223 Fr Francium 87	226 Ra Radium 88	227 Ac Actinium 89 †															

140 Ce Cerium 58	141 Pr Praseodymium 59	144 Nd Neodymium 60	147 Pm Promethium 61	150 Sm Samarium 62	152 Eu Europium 63	157 Gd Gadolinium 64	159 Tb Terbium 65	163 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	237 Np Neptunium 93	244 Pu Plutonium 94	243 Am Americium 95	247 Cm Curium 96	247 Bk Berkelium 97	251 Cf Californium 98	252 Es Einsteinium 99	257 Fm Fermium 100	258 Md Mendelevium 101	259 No Nobelium 102	260 Lr Lawrencium 103

* 58–71 Lanthanoid series
† 90–103 Actinoid series

Key: a = relative atomic mass; X = atomic symbol; b = atomic (proton) number

The volume of one mole of any gas is 24 dm^3 at room temperature and pressure (r.t.p.).

12

6888/01/O/N/2019

BLANK PAGE

BLANK PAGE

BLANK PAGE

BLANK PAGE