



EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

CANDIDATE
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PHYSICAL SCIENCE

6888/01

Paper 1 Short Answers

October/November 2024

1 hour

Candidates answer on the Question Paper.

No additional materials are required.

READ THESE INSTRUCTIONS FIRST

Write your name, centre number and candidate number in 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 on the bar code.

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 appropriate units.

A copy of the Periodic Table is printed on page 9.

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 **9** printed pages and **3** blank pages.

1 State the process used to:

(a) separate ethanol from water

..... [1]

(b) separate a mixture of coloured food dyes.

..... [1]

2 Fig. 2.1 shows a racing car and a mini truck.



racing car



mini truck

Fig. 2.1

State **two** reasons why the racing car is more stable than the mini truck.

1

2

[2]

3 A student places a brown gas at the bottom of a gas jar, then covers the jar with an upside down gas jar as shown in Fig. 3.1.

The student observes the gas jars for a few hours.

The gas jars are now filled with the brown gas as shown in Fig. 3.1.

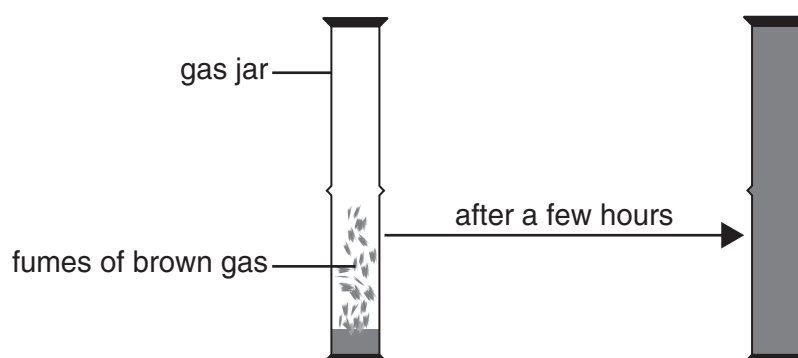


Fig. 3.1

Explain what the student observed.

.....

[2]

- 4 A student sees an ambulance in the rear-view mirror of a car.

The student observes that the mirror image of the word 'AMBULANCE' in Fig. 4.1 appears as shown in Fig. 4.2.



Fig. 4.1



Fig. 4.2

State the property of the image formed in the car's mirror.

..... [1]

- 5 Fig. 5.1 is a diagram showing the ions in a lattice of potassium chloride.

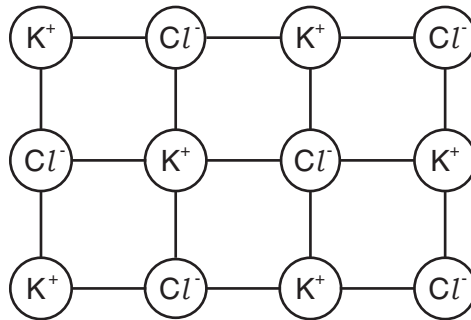


Fig. 5.1

- (a) Name the type of forces holding the ions together in the lattice of potassium chloride.

..... [1]

- (b) Explain why potassium chloride does **not** conduct electricity when solid but does when molten.

.....

 [2]

- 6 A person in Mbabane watches a live news broadcast from London, thousands of kilometres away.

Use ideas about electromagnetic waves to explain why it is possible to watch the live news broadcast.

.....

 [2]

- 7 A hydrocarbon is made up of 1.2 grams of carbon and 0.2 grams of hydrogen.
Determine the empirical formula of the hydrocarbon.

[A_r: C,12; H, 1]

[2]

- 8 Fig. 8.1 shows two uncharged metal spheres touching each other.

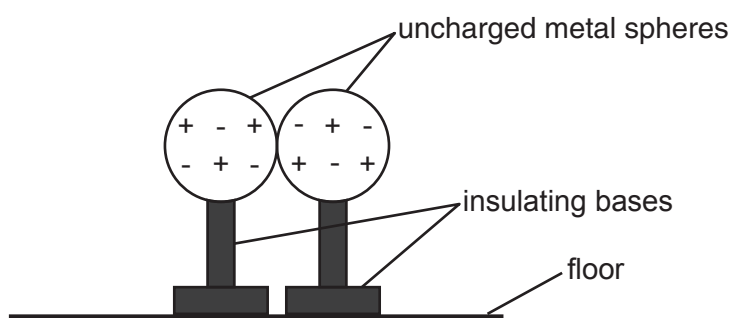


Fig. 8.1

A student brings a positively charged polythene rod near the spheres as shown in Fig. 8.2.

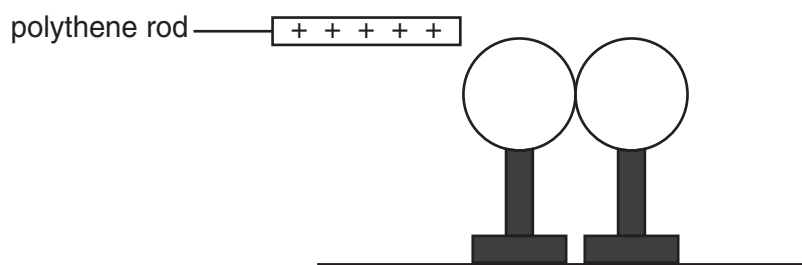


Fig. 8.2

In Fig. 8.2, draw the distribution of charges on the spheres.

[2]

- 9 Fig. 9.1 shows the set-up of apparatus that can be used in the electrolysis of molten magnesium chloride.

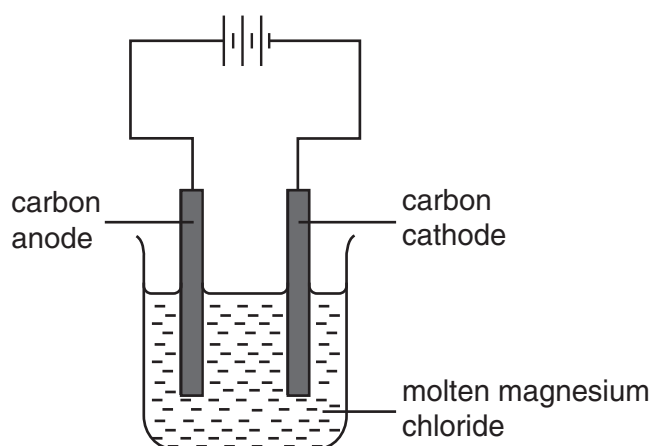


Fig. 9.1

- (a) After a few minutes, the size of the carbon cathode had increased.

Explain why the size of the cathode increases.

.....

 [2]

- (b) State how the composition of the electrolyte will differ if aqueous magnesium chloride is used in Fig. 9.1.

.....
 [1]

- 10 A current of 1.15 A flows through a circuit in 120 s.

- (a) State what is meant by the term *electric current*.

..... [1]

- (b) Calculate the charge in the circuit.

..... C [2]

- 11 Mining of minerals such as iron ore has a negative impact on plants.

State **one** negative impact of mining on plants.

.....
 [1]

- 12** Fig. 12.1 shows an iron bar suspended near the North pole of a magnet.

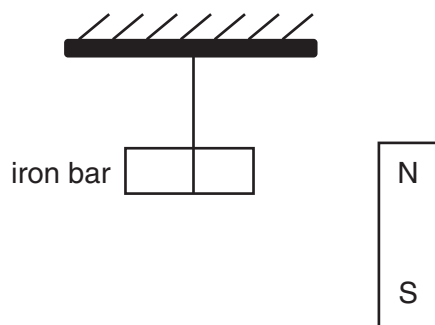


Fig. 12.1

- (a)** Explain, in terms of magnetic induction, what happens to the iron bar when the magnet is moved closer.

.....

 [2]

- (b)** State how you can determine if two iron bars are magnets.

.....
 [1]

- 13** Silver bromide, AgBr, is a silver salt used in photography.

Photography is an endothermic process.

- (a)** Explain why photography is an endothermic process.

.....
 [1]

- (b)** The overall reaction of silver bromide in the photographic film reaction is represented by the symbol equation:



Using this reaction, describe reduction in terms of electron transfer.

.....

 [2]

- 14** Steel is a ferrous material.

Define ferrous material.

..... [1]

- 15** Nitrogen reacts with hydrogen to form ammonia in the Haber process.

Fig. 15.1 shows a simple diagram of the Haber process.

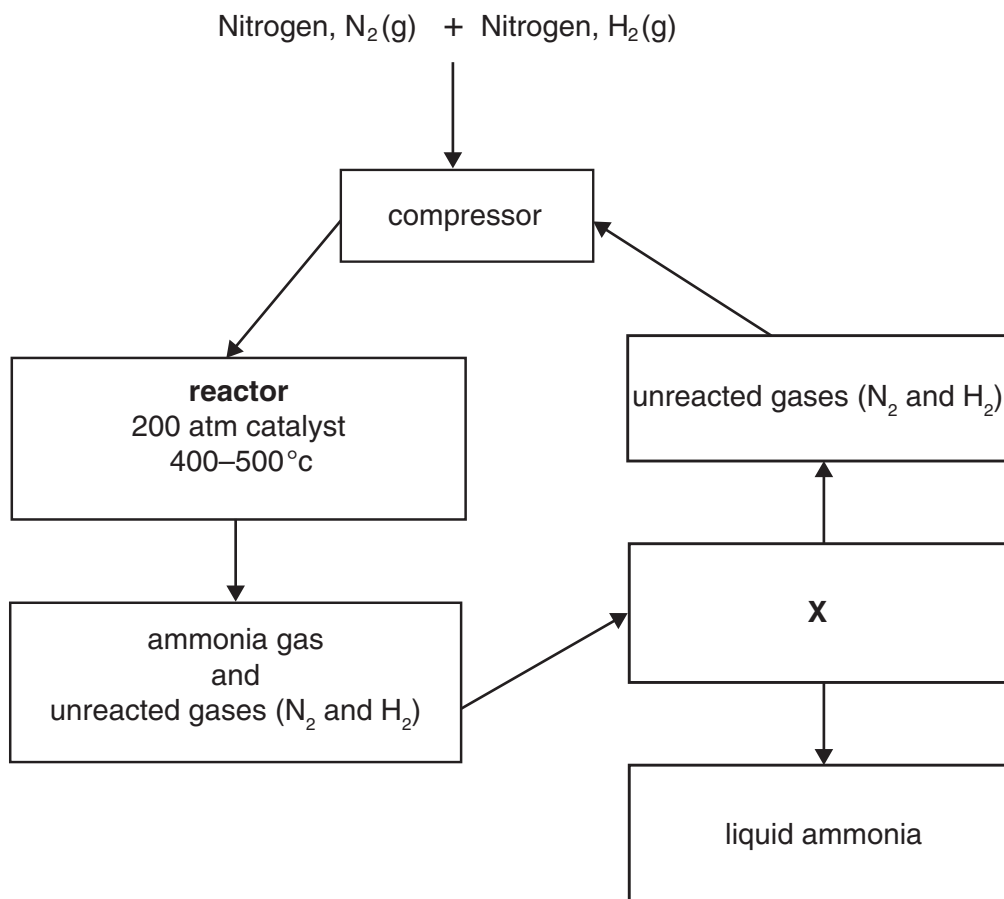


Fig. 15.1

- (a)** State the name of the catalyst in the reactor.

..... [1]

- (b)** State the process that occurs at **X**, in Fig. 15.1, to convert gaseous ammonia to liquid ammonia.

.....

..... [1]

- 16** Iron(II) nitrate changes to iron(III) nitrate when exposed to air.

Describe the colour changes observed when iron(II) nitrate changes to iron(III) nitrate.

..... [2]

17 Fig. 17.1 shows an electromagnet.

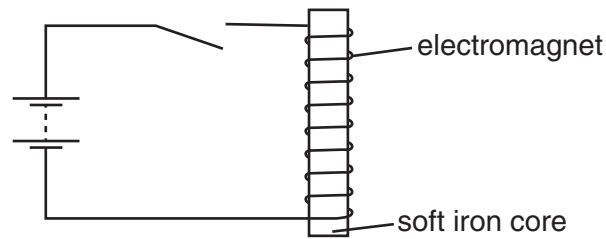


Fig. 17.1

(a) State **one** way by which the strength of the electromagnet in Fig. 17.1 can be increased.

..... [1]

(b) Explain why soft iron is used as a core in the electromagnet.

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

18 Fig 18.1 shows a simple generator.

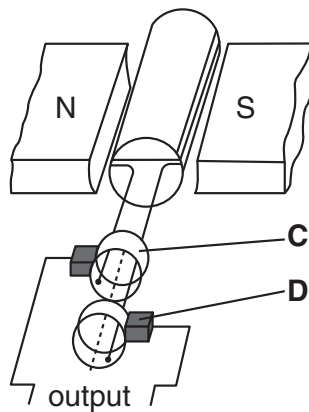


Fig. 18.1

Name the parts labelled **C** and **D**.

C

D

[2]

19 Radioactive substances emit alpha particles, beta particles and gamma rays.

(a) State the nature of a beta particle.

..... [1]

(b) Name the type of radioactive emission that is **not** deflected in a magnetic field.

..... [1]

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

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

a	X	a = relative atomic mass
b	X	b = atomic (proton) number

