AQA GCSE CHEMISTRY (HIGHER) · 8462

CHEMISTRY



EXAM QUESTION PACK

4.10.1 USING THE EARTH'S RESOURCES AND OBTAINING POTABLE WATER (PACK 1)

SCORE	PERCENTAGE
/200	%

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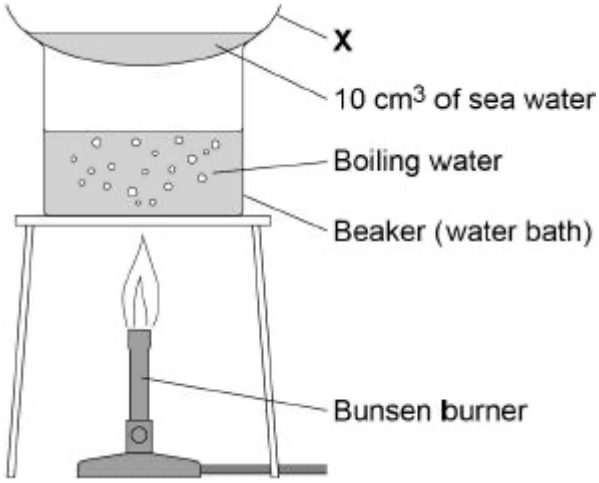
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Q1.

A student tested a sea water sample for dissolved solids.

Figure 1 shows the apparatus.

Figure 1



(a) What is apparatus **X** on **Figure 1**?

Tick **one** box.

Boiling tube ☐

Condenser ☐

Funnel ☐

Watch glass ☐

(1)

(b) The student did the test four times.

The student calculated the mass of solid on apparatus **X** after heating.

The table below shows the student's results.

	Test 1	**Test 2**	**Test 3**	**Test 4**
Mass of solid in grams	0.12	0.29	0.14	0.15

Calculate the mean mass of solid.

Do not include the anomalous result in your calculation.

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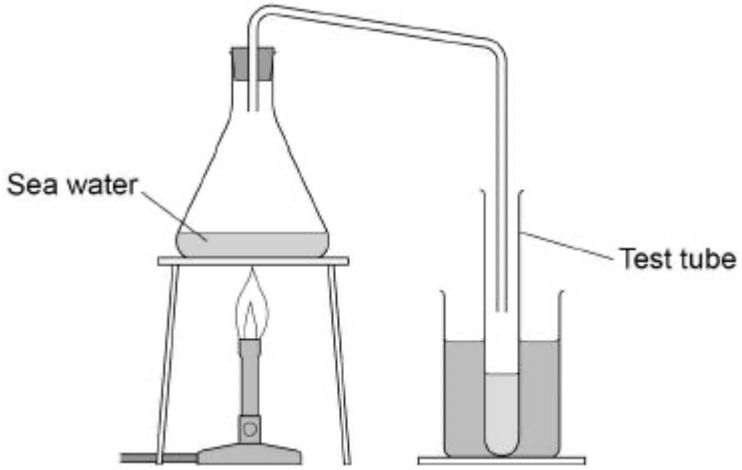
Give your answer to 2 significant figures.

Mean mass = _____ g

(3)

The student distilled a sample of sea water in the apparatus shown in **Figure 2**

Figure 2



(c) What change of state is happening at the surface of the sea water in **Figure 2**?

(1)

(d) Describe how the water in the test tube in **Figure 2** is different from the sea water.

(1)

(e) Why does producing drinking water from sea water using distillation cost a lot of money?

(1)

(f) River water is filtered then sterilised to make drinking water.

Why are these **two** processes done?

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Filtering _____

_____

Sterilising _____

_____

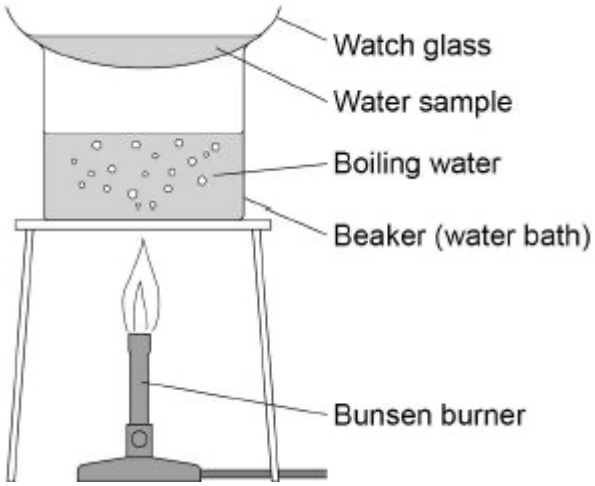
(2)

(Total 9 marks)

Q2.

A student investigated the mass of dissolved solids in 5 cm^3 samples of water.

The diagram below shows the apparatus.



The table below shows the student's results.

Type of water	Mass in g			
	Watch glass	**Watch glass and dissolved solids**	**Dissolved solids in 5 cm^3 of water**	**Dissolved solids in 1000 cm^3 of water**
Sea water	9.34	9.48	0.14	28.00
River water	9.15	9.23	0.08	**X**
Rainwater	8.93	8.93	0.00	0.00

(a) Calculate mass **X** in the table above.

_____

_____

Mass **X** = _____ g

(1)

(b) 5 cm^3 is a small volume of water for each experiment.

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Give **one** advantage and **one** disadvantage of using a larger volume.

Advantage _____

_____

Disadvantage _____

_____

(2)

(c) Potable water is **not** pure water.

Describe the difference between potable water and pure water.

_____

_____

_____

(1)

(d) Potable water is obtained from both groundwater **and** from sea water.

Describe how groundwater and sea water are treated to produce potable water.

_____

_____

_____

_____

_____

_____

(3)

(e) The percentage by mass of dissolved solids in a 6.50 g sample is 2.2%

Calculate the mass of the dissolved solids.

_____

_____

_____

_____

Mass of dissolved solids = _____ g

(2)

(Total 9 marks)

Q3.

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Water is important to all living organisms.

In some parts of Africa getting potable water may be difficult.

(a) What is potable water?

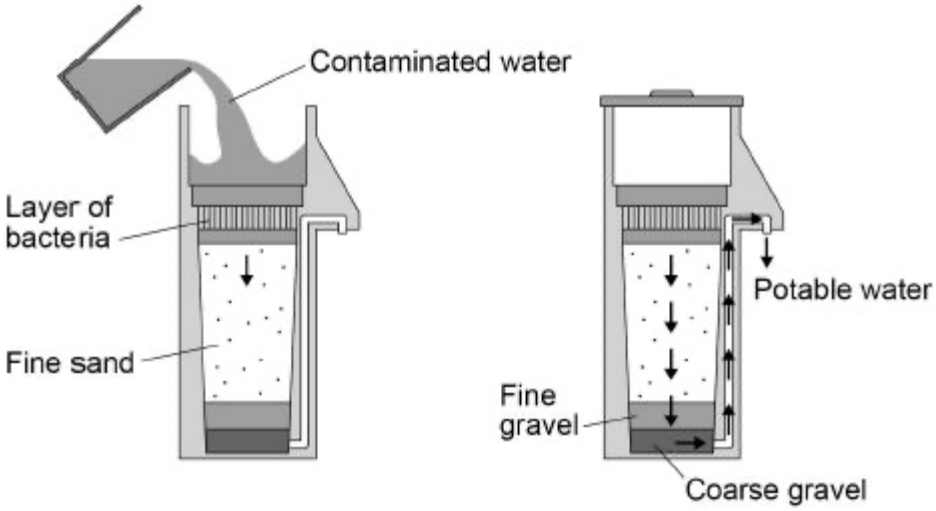
_____

_____

(1)

Biosand units are one method of purifying water used in some parts of Africa.

The diagram below shows a Biosand unit.



(b) Describe the role of the fine sand.

_____

_____

(1)

Another method of purifying water is Solar Disinfection (SODIS).

The table below gives some information about both methods.

Method	**Description**	**Percentage reduction in pathogens that cause diarrhoea**
Biosand unit	Before use, it needs to be left for 2 weeks for the bacteria in the unit to grow. Can treat 40 litres of water per hour. Made of concrete. Needs replacing every 10	47

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	years.	
SODIS	Plastic bottles are filled with water and left in sunlight. Ultraviolet (UV) kills bacteria. Bottles need to be left in sunlight for at least 8 hours. Bottles have to be replaced every 6 months.	31

(c) A 1 litre bottle for SODIS costs 29p. Each litre bottle needs replacing after 6 months.

A family uses 6 litres of potable water per day.

Calculate the cost per year of using SODIS for the family.

_____

_____

_____

_____

Cost per year = £_____

(2)

(d) Other than cost, give **two** disadvantages of using the Biosand unit instead of SODIS.

1. _____

_____

2. _____

_____

(2)

(e) Give **two** advantages of using the Biosand unit instead of SODIS.

1. _____

_____

2. _____

_____

(2)

(f) SODIS uses UV light to sterilise water.

Give **one** other method of sterilising water.

_____

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(1)

(Total 9 marks)

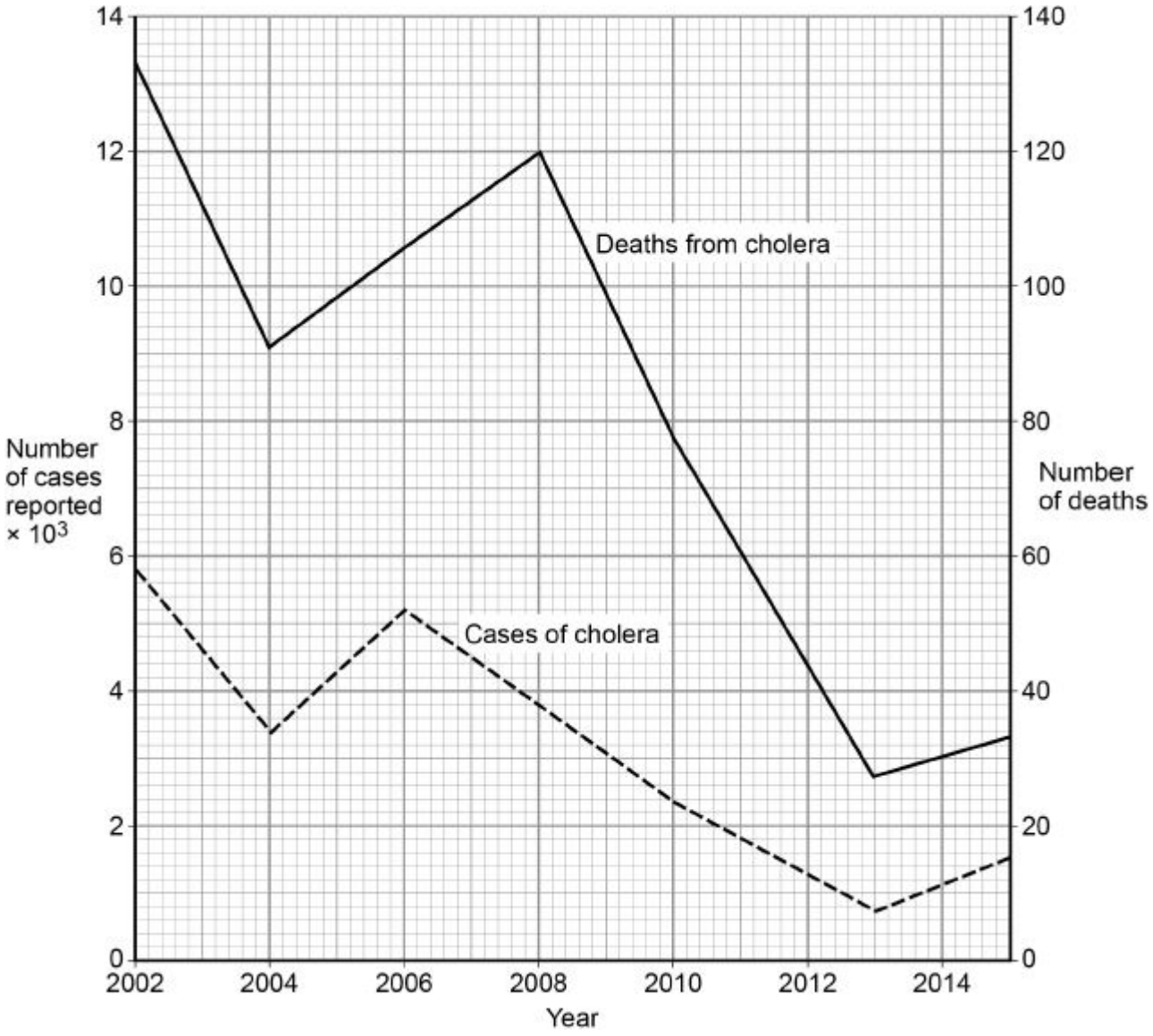
Q4.

Getting safe drinking water is a problem for millions of people.

Cholera is a waterborne disease.

Figure 1 shows data about cholera from one area of Africa.

Figure 1



(a) What percentage of cases of cholera reported in 2004 resulted in deaths in 2004?

Give your answer to 2 significant figures.

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Percentage deaths = _____

(4)

(b) A student concluded that a cholera epidemic occurred in 2008.

Give **one** reason for and **one** reason against the student's conclusion.

Use information from **Figure 1**.

(2)

(c) A different student concluded that a cholera epidemic had occurred in 2002.

Why can we **not** be sure of this from the data given in **Figure 1**?

(1)

(d) Suggest **two** possible ways in which cholera might spread in one area of Africa.

1. _____

2. _____

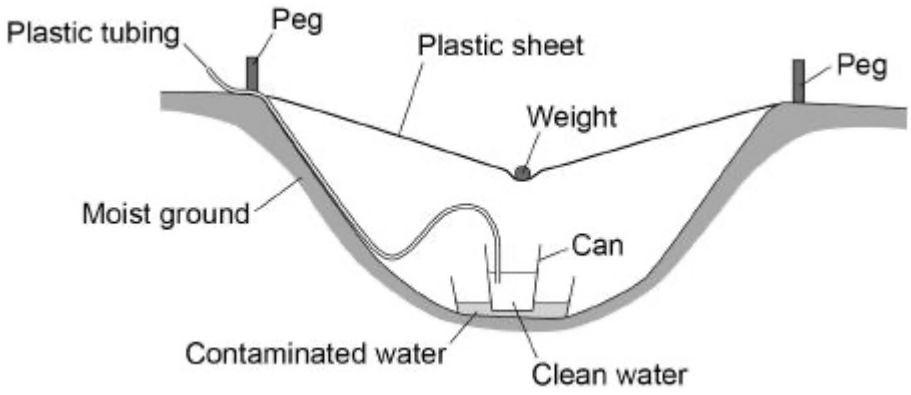
(2)

(e) There are a number of ways to provide clean and safe water for people.

Figure 2 shows a simple method for collecting clean water. This method is called solar distillation.

Figure 2

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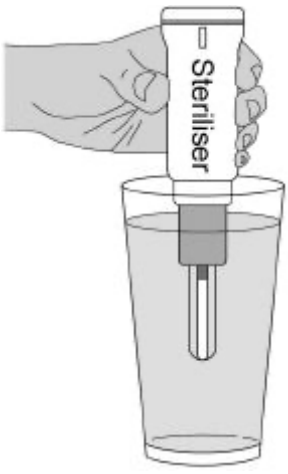
Explain the processes that occur in the method shown in **Figure 2** to provide clean drinking water.

(5)

(f) Another method of making water safe to drink is to use a portable steriliser.

Figure 3 shows a portable steriliser.

Figure 3



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The steriliser emits light.

Explain how the steriliser kills the bacteria in the water.

_____

_____

_____

_____

_____

_____

(3)

(Total 17 marks)

Q5.

Copper can be extracted using biological methods.

(a) Name **two** biological methods used to extract copper from copper ores.

For each method, name the type of organism used in the process.

Method 1 _____

Type of organism _____

Method 2 _____

Type of organism _____

(4)

(b) Give **three** reasons why biological methods are being introduced to extract copper.

1. _____

_____

2. _____

_____

3. _____

_____

(3)

The biological methods produce copper compounds such as copper sulfate.

(c) Copper can be extracted from copper sulfate solution by adding scrap iron.

Explain why.

_____

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_____

_____

_____

(2)

(d) Complete the chemical equation for the reaction between iron and copper sulfate solution.

Include state symbols.

_____ (___) + $CuSO_4$(___) → _____ (___) + _____(aq)

(2)

(e) A solution of copper sulfate contains 3.175 g of copper ions.

Calculate the number of copper ions in the solution.

Give your answer in standard form.

Relative atomic mass (A_r): Cu = 63.5

The Avogadro constant is 6.02×10^{23} per mole.

_____

_____

_____

_____

_____

_____

Number of copper ions = _____

(4)

(Total 15 marks)

Q6.

This question is about copper and its compounds.

(a) The table shows information about bioleaching and phytomining.

Bioleaching and phytomining are used to extract copper from low grade ores.

	Bioleaching	**Phytomining**
Metal extracted from	Waste from quarrying	Contaminated ground
Speed of process	Very slow	Slow, made more efficient

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		using quick-growing plants
Pollution	Produces a solution of toxic chemicals which may run off into rivers Takes a long time to stop the process if river pollution occurs	Involves combustion of plants but decontaminates polluted ground

Compare phytomining and bioleaching.

Use the information in the table.

(4)

(b) Describe how copper sulfate solution is obtained from the plants used in phytomining.

(2)

(c) Copper is displaced from a solution of copper sulfate using iron.

Write a balanced symbol equation for this reaction.

(2)

(d) How does this displacement reaction take place?

Tick **one** box.

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Electron sharing ☐

Electron transfer ☐

Proton transfer ☐

(1)

(e) Describe how copper conducts electricity.

_____

_____

_____

_____

(2)

(f) Suggest how anhydrous copper sulfate is used to test for water.

_____

_____

_____

_____

(2)

(Total 13 marks)

Q7.

Used disposable nappies are sent to landfill.

(a) 1 600 000 babies in the UK use disposable nappies.

Each baby uses 5 nappies in 1 day.

Calculate the total number of disposable nappies used in 1 day.

Give your answer in standard form.

_____

_____

Total number of nappies = _____

(2)

Disposable nappies contain a hydrogel.

A hydrogel is a substance that absorbs water.

A nappy manufacturer investigated the mass of water absorbed by different masses of a hydrogel.

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Table 1 shows the results.

Table 1

Mass of hydrogel in g	Mass of water absorbed in g			Mean mass of water absorbed in g
	Experiment 1	Experiment 2	Experiment 3	
0.5	148	151	151	**X**
1.0	292	295	304	297
1.5	452	456	500	454
2.0	599	610	606	605
2.5	742	753	755	750

(b) One of the results for 1.5 g of hydrogel is anomalous.

Which experiment has an anomalous result?

Tick **one** box.

Experiment **1** ☐

Experiment **2** ☐

Experiment **3** ☐

(1)

(c) Calculate value **X** in **Table 1**.

_____

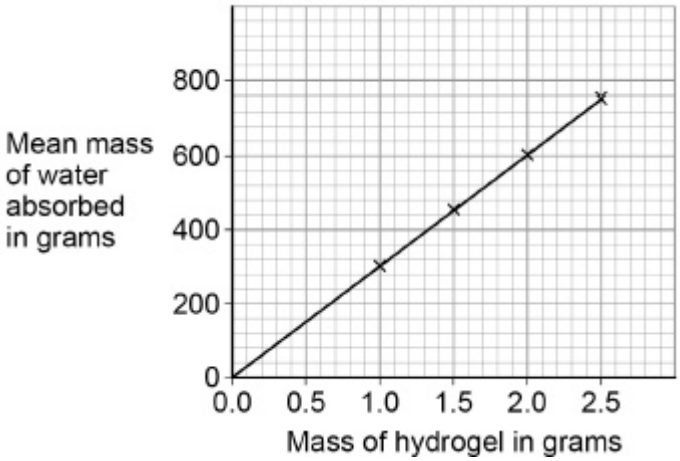
_____

X = _____ g

(2)

Some of the results are shown on the graph.

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(d) Determine the mass of water absorbed by 1.8 g of hydrogel.

Use the graph.

_____

_____

Mass of water absorbed = _____ g

(1)

(e) Which of the following is a valid conclusion from the graph.

Tick **one** box.

mean mass of water absorbed in grams ∝ mass of hydrogel in grams ☐

mean mass of water absorbed in grams = mass of hydrogel in grams ☐

mean mass of water absorbed in grams « mass of hydrogel in grams ☐

mean mass of water absorbed in grams ~ mass of hydrogel in grams ☐

(1)

(f) Fabric nappies are an alternative to disposable nappies.

Table 2 shows information from a life cycle assessment of fabric nappies and disposable nappies.

Table 2

	Fabric nappy	**Disposable nappy**
Reusable	Yes - can be reused many times	No
Biodegradable	Yes	No

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Carbon dioxide produced per nappy in g	564	519
Water used to make each nappy in m^3	1.34	0.15

Compare the advantages and disadvantages of using fabric nappies instead of disposable nappies.

Use data from **Table 2**.

(4)

(Total 11 marks)

Q8.

Copper can be produced from copper(II) sulfate solution by two different methods.

Method 1 – Electrolysis

(a) To produce copper by electrolysis a student has inert electrodes, a d.c. power supply, a switch and electrical wires for the external circuit.

Draw and label the apparatus set up to produce copper from copper(II) sulfate solution by electrolysis.

(2)

(b) Suggest why the colour of the copper(II) sulfate solution fades during the electrolysis.

(3)

(c) Explain how copper is produced from copper(II) sulfate solution by electrolysis.

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(4)

Method 2 – Displacement

(d) The chemical equation for the displacement of copper using iron is:

$$CuSO_4 + Fe \rightarrow Cu + FeSO_4$$

Calculate the minimum mass of iron needed to displace all of the copper from 50 cm^3 of copper(II) sulfate solution.

The concentration of the copper(II) sulfate solution is 80 g $CuSO_4$ per dm^3.

Relative atomic masses (A_r): O = 16; S = 32; Fe = 56; Cu = 63.5

Give your answer to 2 significant figures.

Mass of iron = _____ g

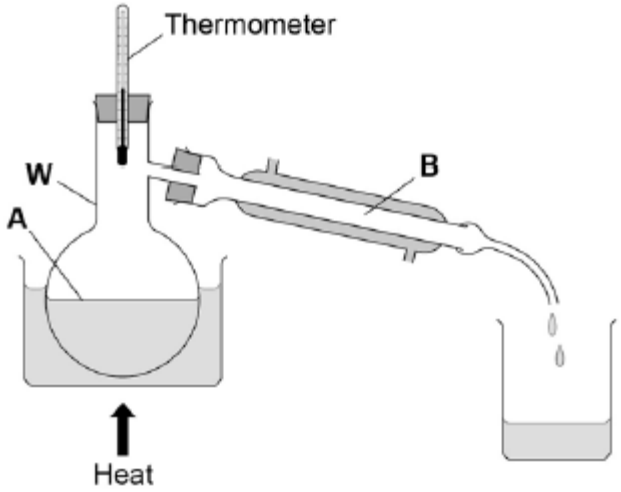
(4)

(Total 13 marks)

Q9.

The apparatus in the figure below is used to separate a mixture of liquids in a fuel.

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(a) What is apparatus **W** on above the figure above?

Tick **one** box.

Beaker ☐

Boiling Tube ☐

Flask ☐

Jug ☐

(1)

(b) What is the name of this method of separation?

Tick **one** box.

Crystallisation ☐

Electrolysis ☐

Filtration ☐

Distillation ☐

(1)

(c) Name the changes of state taking place at **A** and **B** in the figure above.

Use words from the box.

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boiling	condensing	freezing	melting

Change of state at **A**: _____

Change of state at **B**: _____

(2)

(d) **Table 1** shows the boiling points of the hydrocarbons in the fuel.

Table 1

Hydrocarbon	Boiling point in °C
Pentane	36
Hexane	69
Heptane	98
Octane	125

Which hydrocarbon will be the last to collect in the beaker?

Tick **one** box.

Pentane ☐

Hexane ☐

Heptane ☐

Octane ☐

(1)

(e) The fuel is a mixture of liquids that has been designed as a useful product.

What name is given to this type of mixture?

Tick **one** box.

Catalyst ☐

Formulation ☐

Polymer ☐

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Solvent ☐

(1)

(f) Describe how this fuel is different from crude oil.

_____

_____

_____

_____

(2)

(g) A student measured the melting point of a solid hydrocarbon four times.

The student's results are in **Table 2**.

Table 2

	Trial 1	**Trial 2**	**Trial 3**	**Trial 4**
Melting point in °C	35	48	37	37

Calculate the mean melting point of the hydrocarbon, leaving out any anomalous result.

Give your answer to two significant figures.

_____

_____

Mean melting point = _____ °C

(2)

(Total 10 marks)

Q10.

This question is about drinking water.

(a) Name **two** methods of treating water from rivers, lakes or the sea to produce drinking water.

Tick **two** boxes.

Anaerobic digestion ☐

Cracking ☐

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Desalination ☐

Electrolysis ☐

Sterilising ☐

(2)

(b) The table below shows the amounts of dissolved ions in a sample of drinking water.

Dissolved ion	**Mass in mg per dm^3**
Cl^-	250
Na^+	200
NO_3^+	40

What is the name of the ion with the symbol Cl^-?

Tick **one** box.

Calcium ion ☐

Carbonate ion ☐

Chloride ion ☐

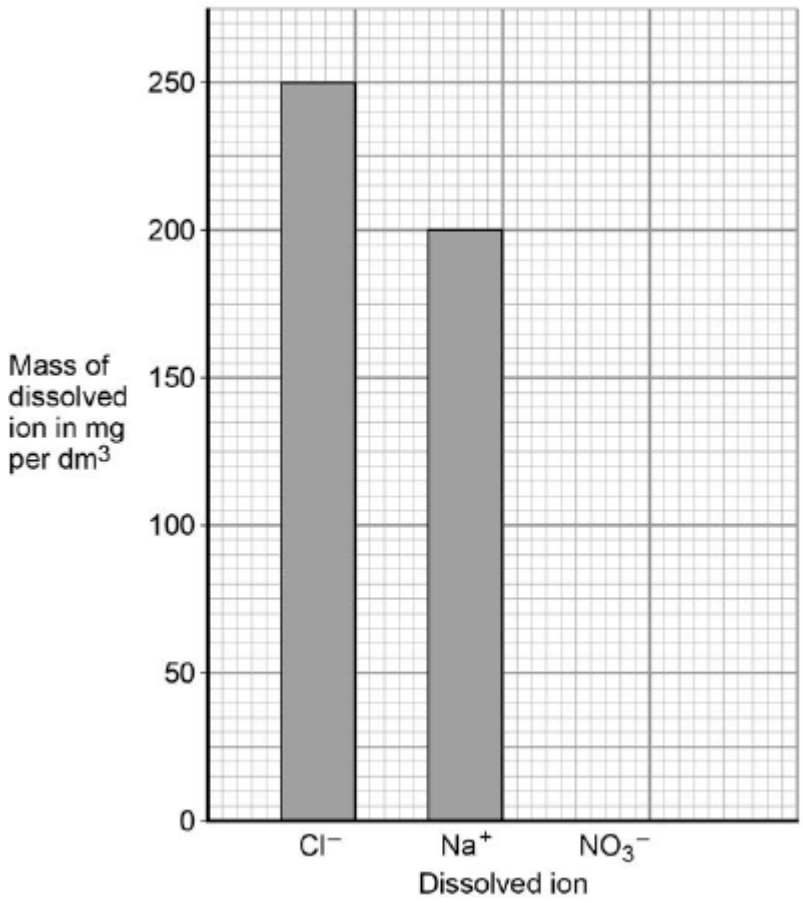
Chlorine ion ☐

(1)

(c) Use the information in the table above to complete the bar chart in **Figure 1**.

Figure 1

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(1)

(d) Look at the questions labelled **A, B, C, D**.

A How many substances are there in drinking water?

B How much fluoride is in drinking water?

C Is fluoride soluble in drinking water?

D Should fluoride be added to drinking water?

Which **one** of the questions cannot be answered by science alone?

Tick **one** box.

A		**B**		**C**		**D**	

(1)

(e) Give **two** reasons why the answer you have chosen cannot be answered by science alone.

1. _____

_____

2. _____

_____

(2)

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(f) A sample of drinking water contains 1.5 mg of fluoride per dm^3 of water. A person drinks 1 dm^3 of this water.

The recommended daily amount of fluoride is 4.0 mg.

Which calculation gives the percentage of the recommended daily amount of fluoride in 1 dm^3 of this water?

Tick **one** box.

$\frac{1.5}{4.0} \times 100$ ☐

$\frac{1.5}{100} \times 4.0$ ☐

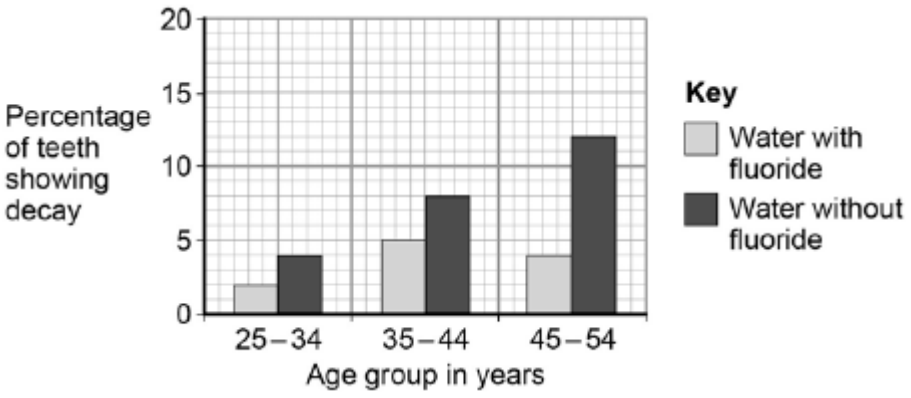
$\frac{4.0}{1.5} \times 100$ ☐

$\frac{100}{1.5} \times 4.0$ ☐

(1)

(g) **Figure 2** shows the effect of fluoride in drinking water on tooth decay in different age groups.

Figure 2



Describe the pattern of tooth decay in **Figure 2** for water without fluoride.

Use data to justify your answer.

_____

_____

_____

_____

(2)

(h) Describe the effect of adding fluoride to drinking water for the age groups in **Figure 2**.

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_____

_____

_____

_____

(2)

(Total 12 marks)

Q11.

(a) The hydrocarbon $C_{16}H_{34}$ can be cracked.

Balance the equation for cracking $C_{16}H_{34}$

$C_{16}H_{34}$ → _____ C_2H_4 + C_8H_{18}

(1)

(b) Describe the differences between cracking and distillation.

_____

_____

_____

_____

(2)

(c) What type of reaction is cracking?

Tick **one** box.

Combustion ☐

Decomposition ☐

Neutralisation ☐

Precipitation ☐

(1)

(d) Ethene is used to make poly(ethene).

Poly(ethene) is used to make plastic bags.

the table below shows data from a Life Cycle Assessment (LCA) for a plastic bag and a paper bag.

Plastic bag	**Paper bag**

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Raw materials	Crude oil or natural gas	Wood
Energy used in MJ	1.5	1.7
Mass of solid waste in g	14	50
Mass of CO_2 produced in kg	0.23	0.53
Volume of fresh water used in dm^3	255	4 520

A company stated: 'A Life Cycle Assessment shows that using plastic bags has less environmental impact than using paper bags'.

Evaluate this statement. Use your knowledge and the information from above the table above.

(6)

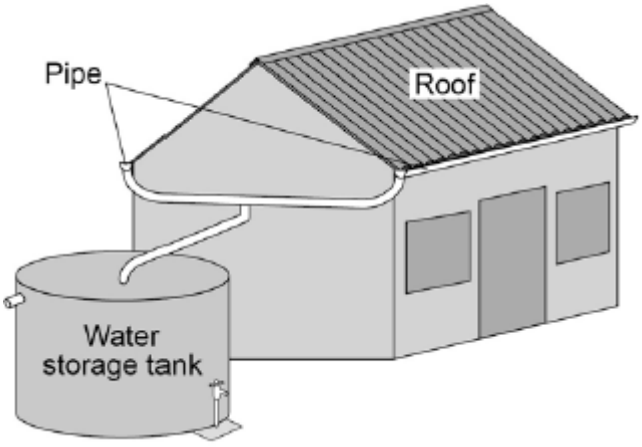
(Total 10 marks)

Q12.

Rainwater is collected from the roofs of houses as shown in **Figure 1**.

Figure 1

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(a) The water in the storage tank is **not** potable.

What does potable mean?

Tick **one** box.

Contains dissolved substances	☐
Pure	☐
Safe to drink	☐
Tastes nice	☐

(1)

(b) Why should the water in the tank be filtered to make it potable?

Tick **one** box.

To kill microbes	☐
To remove dissolved gases	☐
To remove dissolved solids	☐
To remove undissolved solids	☐

(1)

(c) A gas which bleaches litmus paper can be added to the water to make it potable.

Name this gas and explain why it is added.

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(2)

(d) The storage tank is made from concrete reinforced with steel wire, as shown in **Figure 2.**

Figure 2.

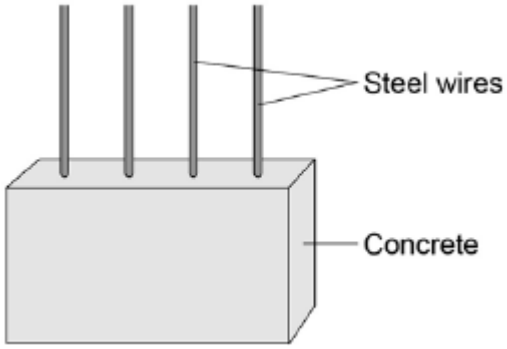
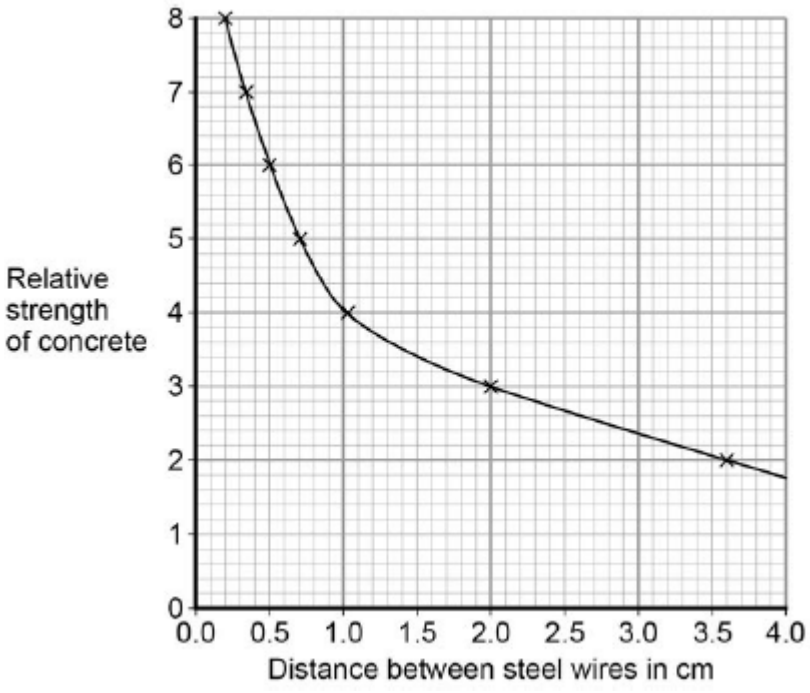


Figure 3 shows how the distance between the steel wires affects the relative strength of the concrete.

Figure 3



Use values from **Figure 3** to describe the relationship shown by the graph.

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(2)
(Total 6 marks)

Q13.

All life on Earth depends on water.

The figure below shows an iceberg floating on the sea.



© Gibas DigiPhoto/iStock/Thinkstock

(a) Explain how the water molecules in the iceberg could end up as water in a lake.

(4)

(b) Rainwater collects in rivers and lakes.

Water in rivers and lakes contains materials that make the water unsafe to drink.

Describe how the water from rivers and lakes is treated to make it safe to drink.

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_____

_____

_____

_____

_____

(4)

(Total 8 marks)

Q29.

The Mary Rose was a wooden warship. The Mary Rose sank in 1545 but was lifted from the sea bed in 1982. Scientists are now preserving the ship.

The image shows the Mary Rose being supported on poles. As part of the preservation process, the ship was sprayed with water for a long time.



By Mary Rose Trust (MR Trust) [CC BY-SA 3.0] via Wikimedia Commons

(a) (i) The table below gives information about two materials. These materials could have been used to make the poles to support the Mary Rose.

Material	Density in g / cm^3	Relative strength	Cost in £ per kg
Steel	7.85	1	4
Titanium	4.51	3.9	4000

Give **two** advantages and **one** disadvantage of using titanium rather than steel.

Use **only** the information from the table above to answer this question.

Advantage 1 _____

Advantage 2 _____

Disadvantage _____

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(3)

(ii) The preserving process used titanium poles.

Tick (✓) **one** other property of titanium which made titanium a suitable choice for the poles.

Property	Tick (✓)
Electrical insulator	
High resistance to corrosion	
Shiny	

(1)

(b) Some metal objects found on the Mary Rose were made of gold or iron.

Draw **one** line from each metal to its usual method of extraction.

Metal	Method of extraction
Gold	Electrolysis of molten compound
	Mined as the pure metal from the ground
Iron	
	Reduction of metal oxide with carbon

(2)

(c) Another metal found on the Mary Rose has the chemical symbol Ag.

Name the metal with the chemical symbol Ag.

Use the Chemistry Data Sheet to help you answer this question.

_____

(1)

(d) The Mary Rose had bronze cannons.

Bronze is an alloy made from two metals, copper and tin.

(i) Use the correct answer from the box to complete the sentence.

compound	**mixture**	**polymer**

An alloy is a _____ of metals.

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(1)

(ii) 88% of a bronze alloy is copper. What percentage of the alloy is tin?

_____

Percentage of tin = _____ %

(1)

(iii) Phytomining is used to extract copper from the ground.

What are used in phytomining?

Draw a ring around the correct answer.

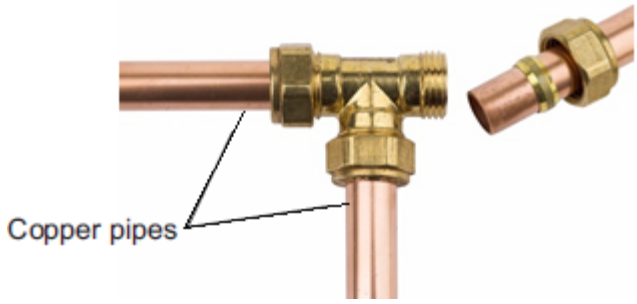
bacteria **fossils** **plants**

(1)

(Total 10 marks)

Q30.

Copper is used in plumbing.



© Dave White/iStock

(a) Complete the following sentence.

Elements in the central block of the periodic table, eg copper, iron and zinc, are called _____ metals.

(1)

(b) State three properties that make copper suitable for use in plumbing.

1. _____

_____

2. _____

_____

3. _____

_____

(3)

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(c) *In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.*

Copper can be extracted from copper ores by two methods:

Method 1 or mining and smelting

Method 2 phytomining.

The main stages in the two methods are shown in the flow diagrams.

Mining and smelting



© Dale Baxter/iStock

The copper ore is mined from the earth.

↓

The copper ore is heated in a furnace with carbon (smelting).

This produces impure copper.

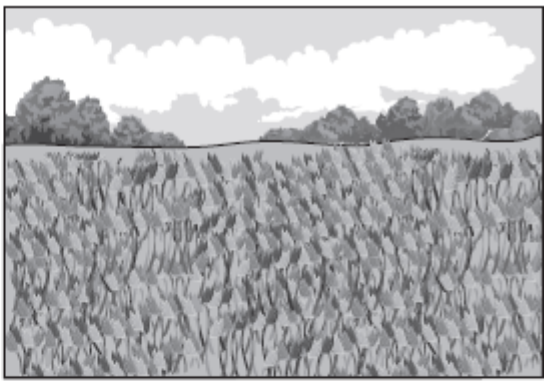
↓

The copper is purified by electrolysis.

↓

Pure copper is produced.

Phytomining



Plants are grown on soil containing low grade ores.

↓

The plants absorb copper compounds from the soil.

↓

The plants are burned.

The ash contains copper compounds.

↓

Copper is extracted from a solution made from the ash by electrolysis.

↓

Pure copper is produced.

Use information from the flow diagrams and your own knowledge to evaluate **both** methods of copper extraction.

Give the advantages **and** disadvantages of **both** methods.

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Remember to include a conclusion in your answer.

(6)
(Total 10 marks)

Q31.

Iron is extracted from iron ore by heating the ore with coke in a blast furnace.

Iron ore contains iron oxide (Fe_2O_3).
Coke contains carbon (C).

(a) (i) Explain why carbon can be used to produce iron from iron oxide.

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_____

_____

_____

_____

(2)

(ii) Balance the equation for the reaction of iron oxide with carbon.

_____ Fe_2O_3 + _____ C → _____ Fe + _____ CO_2

(2)

(b) Two methods of extracting copper are by smelting ores and by phytomining.

Which of these two methods is likely to be the more environmentally friendly?

Give reasons for your choice.

_____

_____

_____

_____

(2)

(Total 6 marks)

Q32.

The picture shows a limestone quarry.



By Thomas Bjørkan (Own work) [CC-BY-SA-3.0], via Wikimedia Commons

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(a) Local residents were against the opening of a new limestone quarry. The quarry was estimated to have a 10-year operating period.

The quarry company gave reasons to show how the quarry could benefit local residents over the next 10 to 15 years.

Suggest **one** economic and **one** environmental reason the quarry company could give.

Economic reason _____

_____

Environmental reason _____

_____

(2)

(b) What happens when limestone (calcium carbonate) is heated?

Include in your answer:

- the chemical names of the substances produced
- the name of the process.

_____

_____

_____

_____

(2)

(c) (i) Lime is calcium oxide. Calcium oxide reacts with water to form calcium hydroxide, $Ca(OH)_2$

Write the symbol equation for this reaction.

_____ + _____ → _____

(2)

(ii) Name the gas that a solution of calcium hydroxide in water is used to test for.

Give the result that you would see if the gas was present.

_____

_____

_____

_____

(2)

(Total 8 marks)

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Q33.

A gold medal was made for a competition.



By Fighting Irish 1977 (Flickr: 2012 Olympics Gold Medal) [CC-BY-2.0], via Wikimedia Commons

(a) The mass number of gold is 197.

Describe the structure of a gold atom.

Use the Chemistry Data Sheet to help you answer this question.

(4)

(b) Bronze medals are made from an alloy of copper.

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By Edgars Košovojs (Own work) [CC-BY-SA-3.0 or GFDL], via Wikimedia Commons

Copper can be extracted by phytomining.

(i) Why is phytomining being used to extract copper?

_____

_____

(1)

(ii) Give the main steps involved in the phytomining process.

_____

_____

_____

_____

_____

_____

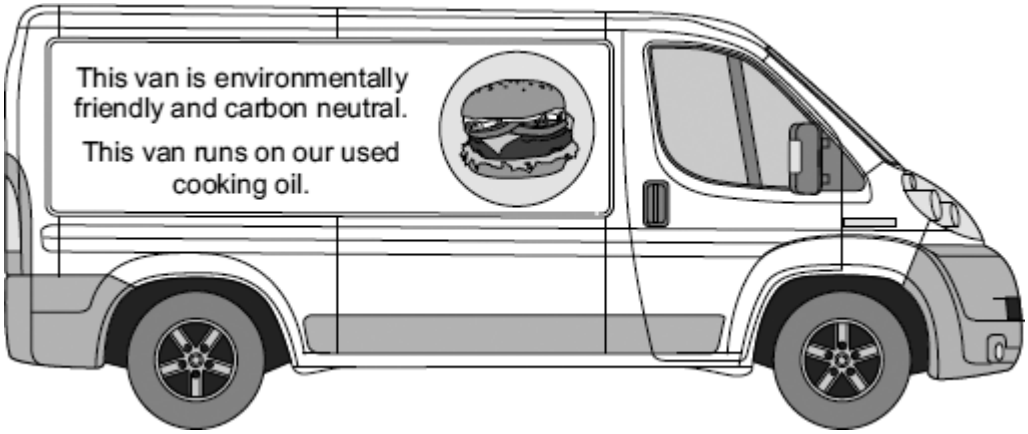
(3)

(Total 8 marks)

Q34.

A burger van has a sign on the side.

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The company that owns the van makes biodiesel from cooking oil.

A scientist investigated the emissions from biodiesel and petroleum diesel.

The scientist burned the same mass of each fuel in a diesel engine.

The scientist compared the emissions produced.

The results are shown in the table.

	Biodiesel	**Petroleum diesel**
Carbon dioxide emitted in g	3000	3000
Unburnt hydrocarbons emitted in g	7	10
Soot emitted in g	6	12
Nitrogen oxides emitted in g	5	2

Use your scientific knowledge and the data in the table to evaluate the advantages and disadvantages of using biodiesel rather than petroleum diesel as a fuel.

Remember to include a supported conclusion in your answer.

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_____

_____

_____

(Total 5 marks)

Q35.

Copper is found in the Earth's crust as an ore containing copper sulfide. Large areas of land, where this ore was once quarried, are contaminated with low percentages of copper sulfide. Copper would be too expensive to extract from this contaminated land using the traditional method of quarrying and then heating in a furnace.

(a) Extracting copper from this land by the traditional method would have a major environmental impact.

Give **two** reasons why.

_____

_____

_____

_____

(2)

(b) One way to extract the copper from land that contains low percentages of copper sulfide is by bioleaching. Bioleaching uses bacteria. The bacteria produce a solution of copper sulfate.

It is possible to get copper from a solution of copper sulfate using scrap iron.

(i) It is economical to use scrap iron to get copper.

Give **one** reason why.

_____

_____

(1)

(ii) Iron can be used to get copper from copper sulfate solution.

Explain why.

_____

_____

_____

_____

(2)

(Total 5 marks)

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Q36.

In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.

There are millions of plastic bags in use. After use most of these plastic bags are buried in landfill sites. The amount sent to landfill could be reduced if the plastic bags:

- could be reused
- could be recycled by melting and making them into new plastic products
- could be burned to release energy.

Use the information above and your knowledge and understanding to give the positive and negative environmental impacts of using these methods to reduce the amount of plastic bags sent to landfill.

(Total 6 marks)

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