



Year 7 Module 2 Practice Paper

Levels 3 - 7



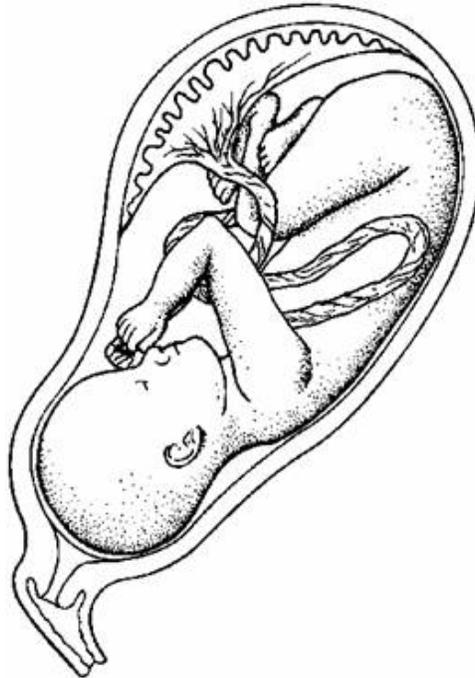
minutes



marks

This is a collection of questions that reflect the CONTENT covered in this module, and not necessarily the TEST.

Q1. The drawing shows a baby inside its mother's uterus.



Some substances pass from the mother's blood to the baby's blood.
Other substances pass from the baby's blood to the mother's blood.

Which way, if any, do the substances in the table pass?
Tick **one** box in each row.

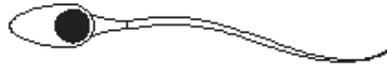
substance	passes from the mother's blood to the baby's blood	passes from the baby's blood to the mother's blood	does not pass between the mother's blood and the baby's blood
poisons from cigarette smoke			
oxygen			
digested food			
carbon dioxide			

4 marks

Q2. Choose words from the box below to answer **all** the questions.

cell division	digestion	fertilisation	foetus	genes
intestine	ovary	ovum (egg)	sperm	testis
				uterus

(a)



A

(i) What is the name of cell A?

.....

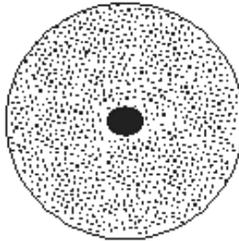
1 mark

(ii) Where is cell A produced?

.....

1 mark

(b)



B

(i) What is the name of cell B?

.....

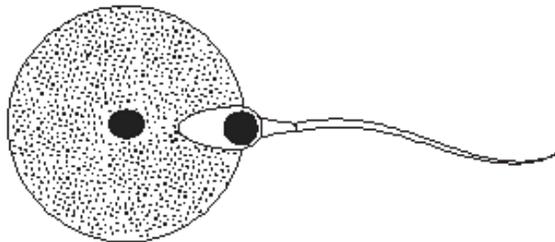
1 mark

(ii) Where is cell B produced?

.....

1 mark

(c)



C

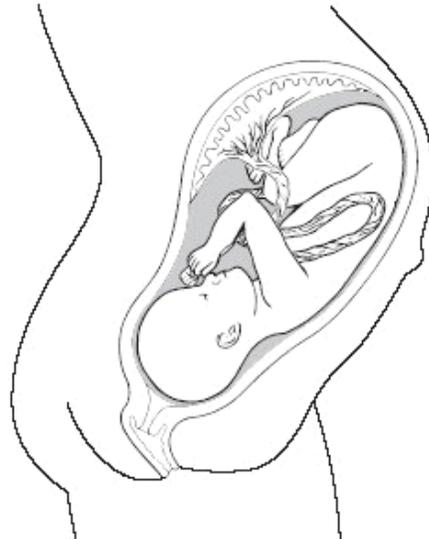
not to scale

What process is shown in C? Choose your answer from the box above.

.....

1 mark

(d) The diagram shows a baby developing inside its mother.



(i) Which word means an unborn baby? Choose your answer from the box above.

.....

1 mark

(ii) Where does the unborn baby develop? Choose your answer from the box above.

.....

1 mark
maximumm 7 marks

Q3. (a) The average life span of a lion in a zoo is 22 years.
The average life span of a lion in the wild is 17 years.

Suggest **two** reasons why lions live longer in a zoo than in the wild.

1.

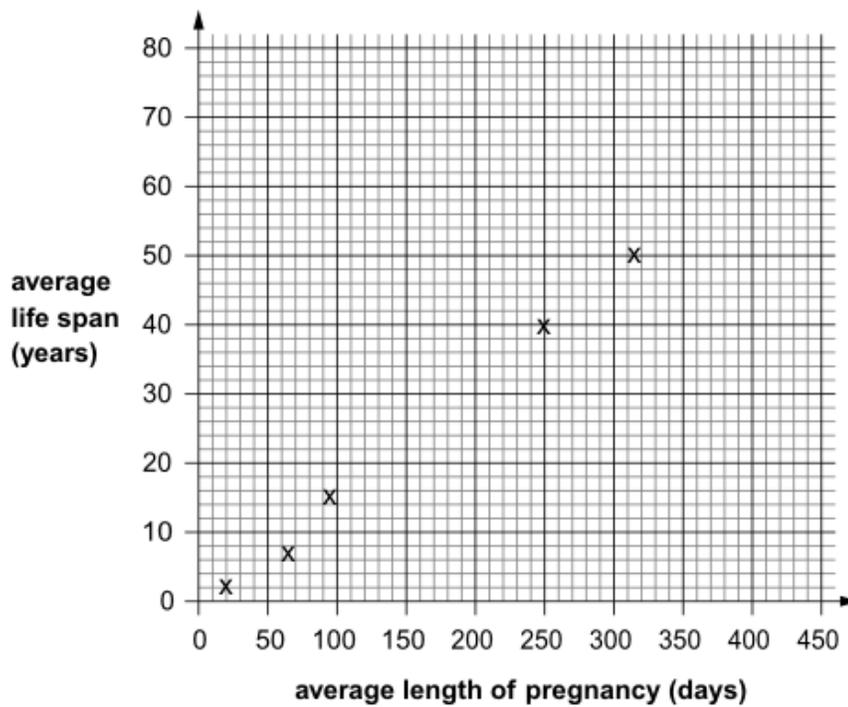
2.

1 mark

(b) John found the following data about five mammals.

mammal	average length of pregnancy (days)	average life span (years)
mouse	20	2
guinea pig	65	7
leopard	96	15
chimpanzee	250	40
whale	315	50

He plotted points using data from the table.



(i) Using the points John plotted, draw a line of best fit.

1 mark

(ii) From the graph, describe the relationship between the average length of pregnancy and the average life span.

.....

1 mark

(c) John found data about three other mammals.

mammal	average length of pregnancy (days)	average life span (years)
Human	266	72
Horse	340	25
Giraffe	440	17

(i) Plot these **three** points on the graph above.

2 marks

(ii) Do these points fit the relationship you described in part (b) (ii)?
Tick the correct box.

yes no

Use the graph to give a reason for your answer.

.....
.....

1 mark
maximum 6 marks

Q4. **Diagram 1** shows a baby in its mother's uterus.

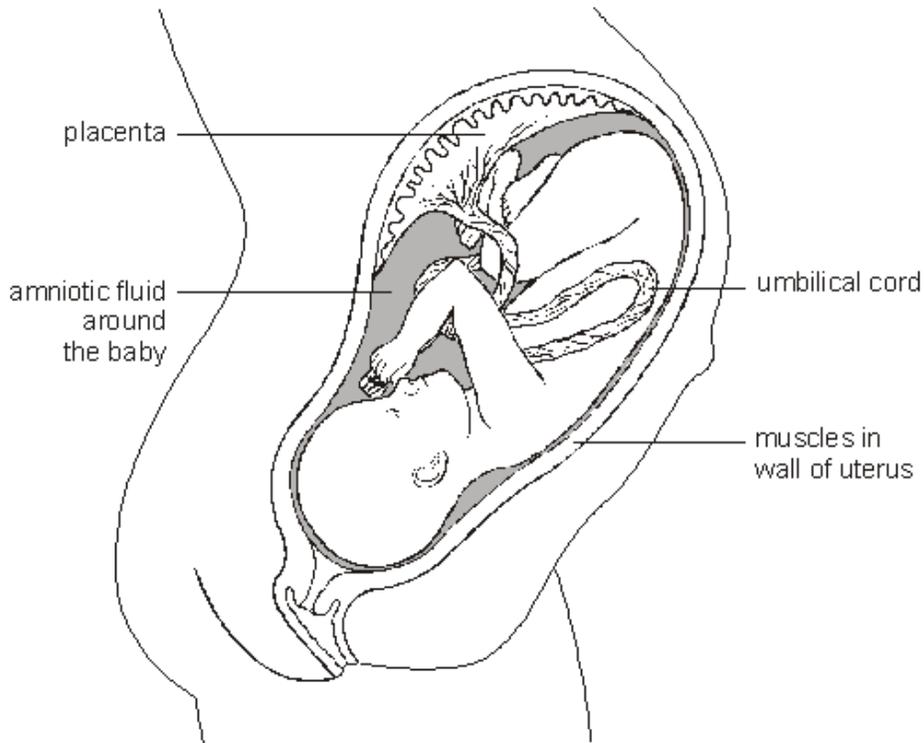


diagram 1

(a) What is the normal length of pregnancy in humans?

..... months

1 mark

(b) (i) What is the function of the amniotic fluid around the baby?

.....

1 mark

(ii) As a baby is born, it is pushed out of the mother's body.

Look at the diagram above.

What happens in the wall of the uterus to push the baby out?

.....

.....

1 mark

(c) How does a baby get oxygen from its mother while it is inside its mother's uterus?

.....

.....

1 mark

(d) **Diagram 2** shows a section through the mother's lungs.

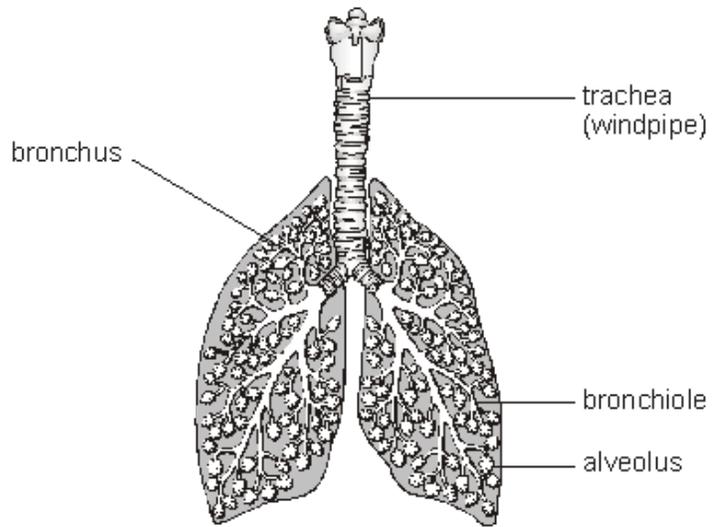


diagram 2

Look at **diagram 2**.

From which labelled part is oxygen absorbed into the blood?

.....

1 mark
maximum 5 marks

Q5. **Diagram 1** shows the female reproductive system.

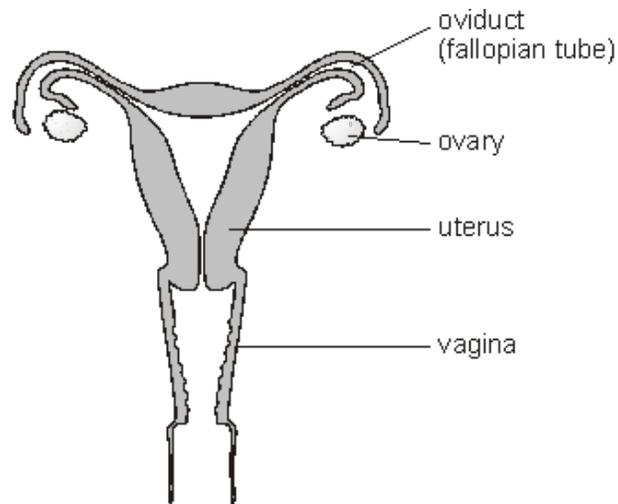


diagram 1

- (a) **Diagram 2** is a graph showing how the thickness of the uterus changed over a 28-day cycle.

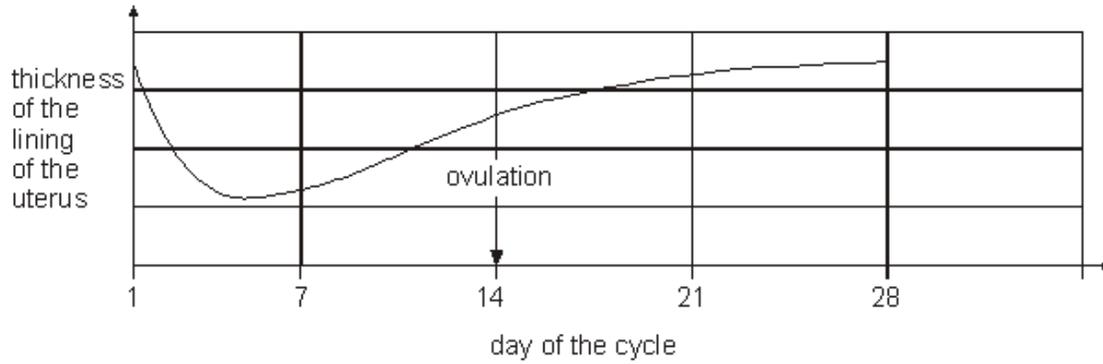


diagram 2

- (i) Why did the thickness of the lining of the uterus decrease between day 1 and day 5 of this cycle?

.....

1 mark

- (ii) Suggest which day in this cycle an ovum (egg) is most likely to be fertilised.
 day

What evidence is there for this in the graph?

.....

1 mark

- (iii) The graph shows that the lining of the uterus builds up again between day 5 and day 14.

Why is this necessary?

.....

1 mark

- (b) (i) Continue the line on the graph to show what would happen to the thickness of the lining of the uterus after 28 days if an ovum was fertilised.

1 mark

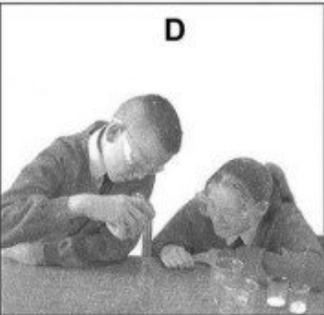
(ii) Explain your answer.

.....
.....

1 mark
maximum 5 marks

Q6. Some pupils carried out an investigation to find out whether more sugar or more salt dissolved in water at 60°C.

Here are some of the steps in their investigation.
They are **not** in the correct order.

<p style="text-align: center;">A</p> 	<p style="text-align: center;">B</p> 	<p style="text-align: center;">C</p> 
<p>They added salt to one beaker of water at 60°C and sugar to the other beaker of water at 60°C.</p>	<p>They stirred the mixtures.</p>	<p>They recorded their results.</p>
<p style="text-align: center;">D</p> 		<p style="text-align: center;">E</p> 
<p>They put 20 cm³ of water at 60°C into two beakers.</p>		<p>They collected this equipment.</p>

(a) Put the letters **A**, **B**, **C**, **D** and **E** in the boxes below to show the correct order of the steps in their investigation.

1st 2nd 3rd 4th 5th

1 mark

(b) Why did they use a measuring cylinder?

.....

1 mark

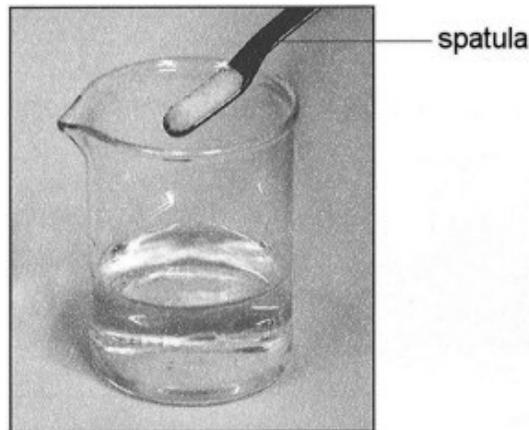
(c) They used water at 60°C in both beakers.

What else did they do to make their investigation fair?

.....
.....

1 mark

(d) They counted the number of spatulas of sugar or salt added to the water until **no** more would dissolve.



(i) Why was this **not** an accurate method of measuring how much sugar or salt they added?

.....
.....

1 mark

(ii) Suggest a more accurate method of measuring how much sugar or salt they added.

.....
.....

1 mark

(e) Jane predicted that more sugar than salt would dissolve.

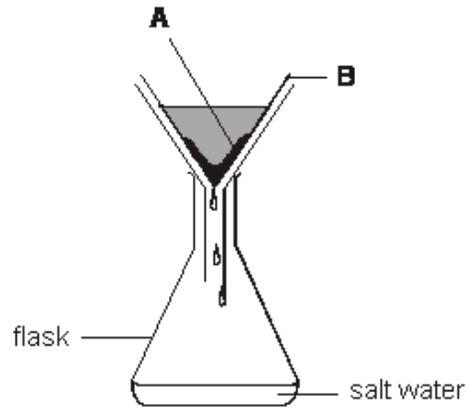
Complete the table to show a result which would support Jane's prediction.

	sugar	salt
number of spatulas	32	

1 mark
maximum 6 marks

Q7. Chris collected some sea water near a beach.
The sea water had salt dissolved in it. It had sand mixed in it.

(a) Chris separated the sand from the salt water as shown below.



(i) What is this method of separation called?
Tick the correct box.

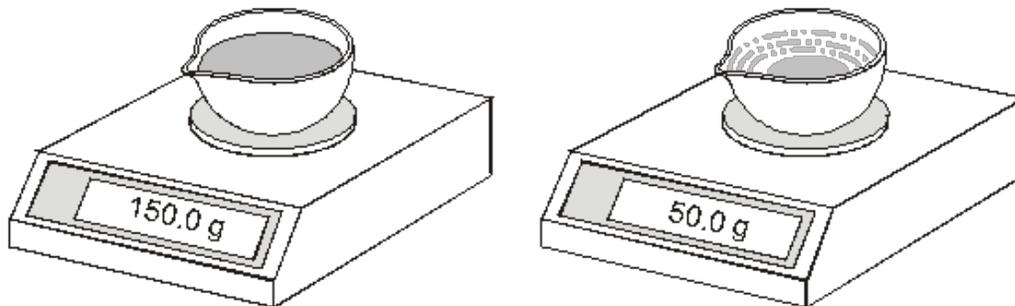
- | | | | |
|----------------|--------------------------|--------------|--------------------------|
| chromatography | <input type="checkbox"/> | distillation | <input type="checkbox"/> |
| filtration | <input type="checkbox"/> | magnetism | <input type="checkbox"/> |

(ii) What is substance A?
.....

(iii) What is the part labelled B?
.....

3 marks

(b) Chris poured some of the salt water from the flask into a dish.
He put the dish on a balance and left it in a warm room for a week.



(i) Look at the two readings on the balance.

Work out the decrease in mass.

..... g

(ii) After one week there was a white solid but **no** liquid in the dish.
What had happened to the water in the dish?

.....

(iii) What was the white solid left in the dish?

.....

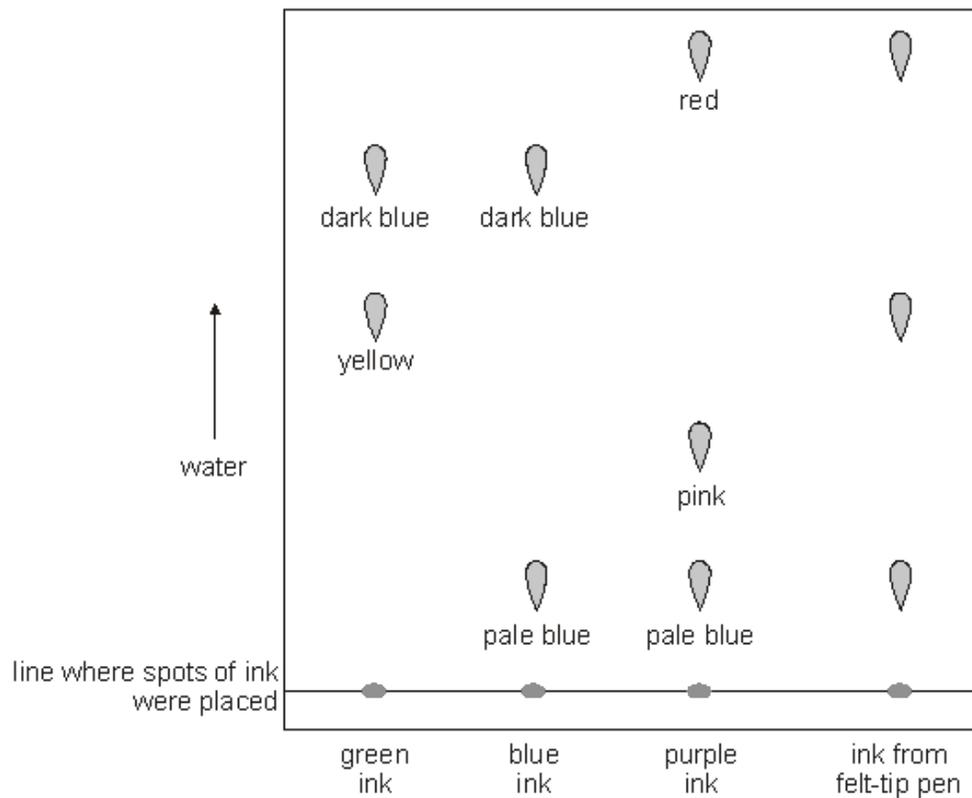
3 marks
maximum 6 marks

Q8. Susie used chromatography to identify the coloured substances in the ink from a felt-tip pen.

She used:

- green ink
- blue ink
- purple ink
- ink from her felt-tip pen.

She used water as the solvent.



Look at the diagram above.

(a) (i) Which colours were present in the ink from the felt-tip pen?

.....

1 mark

(ii) How many coloured substances were there in green ink?

.....

How can you tell?

.....

.....

1 mark

- (iii) Susie placed the spots of ink on a line on the chromatography paper as shown in the diagram.

To draw the line, Susie had to choose a felt-tip pen or a pencil.

Which **one** should she use?

.....

Give the reason for your answer.

.....

.....

1 mark

- (b) Susie used water as the solvent in this experiment. When she repeated the experiment with a different set of pens, it did **not** work. She then used ethanol instead of water.

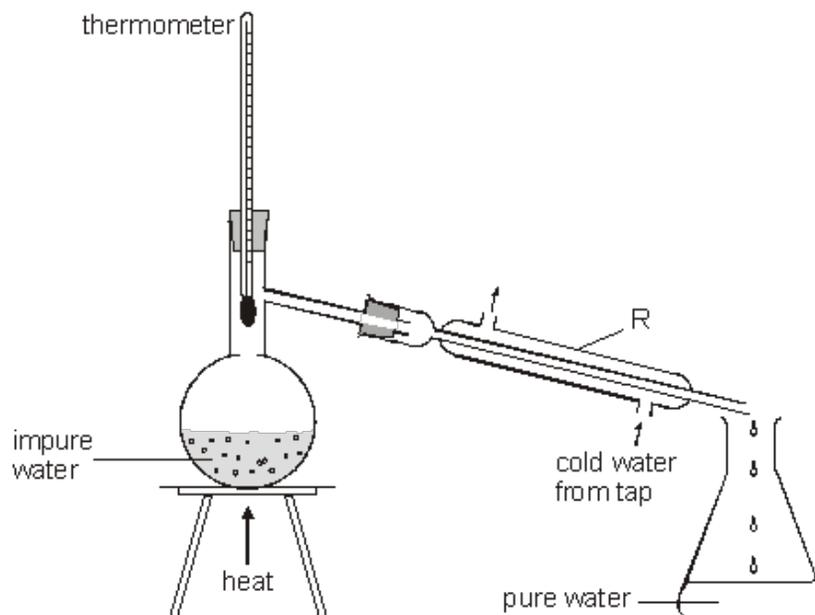
Suggest why the experiment worked with ethanol but **not** with water.

.....

.....

1 mark
maximum 4 marks

- Q9.** (a) The apparatus in the diagram below is used to obtain pure water from impure water.



- (i) What temperature would the thermometer show?

..... °C

1 mark

(ii) What is the function of the piece of apparatus labelled R?

.....
.....

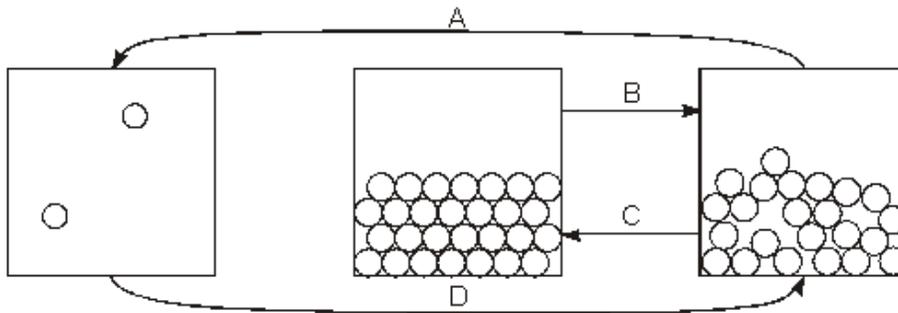
1 mark

(iii) Give the name of the process which purifies water in this way.

.....

1 mark

(b) The diagram below shows particles in a gas, a solid and a liquid. Each arrow, A, B, C and D, represents a change of state.



(i) Choose from the following words to complete the sentences below.

- boiling** **condensing** **distilling** **evaporating**
filtering **freezing** **melting**

Change of state A is called

Change of state B is called

Change of state C is called

Change of state D is called

4 marks

(ii) Look back to the apparatus in part (a).

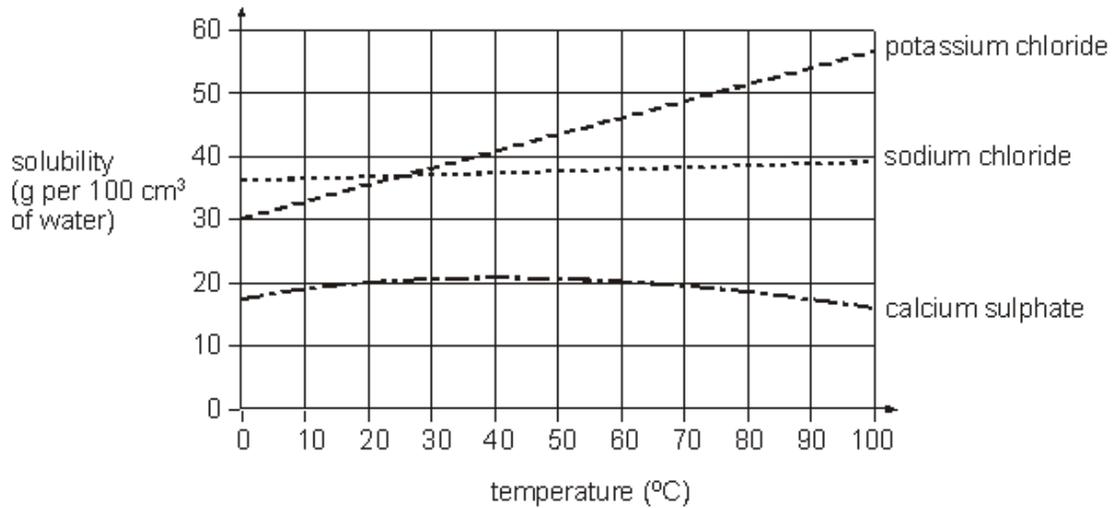
Give the letter, A, B, C or D, from the diagram above, for the change of state which occurs:

in the round-bottomed flask

in the piece of apparatus labelled R.

2 marks
Maximum 9 marks

Q10. The graph below shows how the solubility of three salts, sodium chloride, potassium chloride and calcium sulphate, changes as the temperature changes.



(a) (i) Use the graph above to compare the solubility of sodium chloride and potassium chloride in the temperature range 10°C to 90°C.

.....

.....

.....

.....

2 marks

(ii) Ken had a beaker containing 54 g of potassium chloride dissolved in 100 cm³ of water at 90°C.

He cooled the solution to 40°C.

What would he see in the beaker as the solution cooled to 40°C?

Use the graph to help you.

.....

1 mark

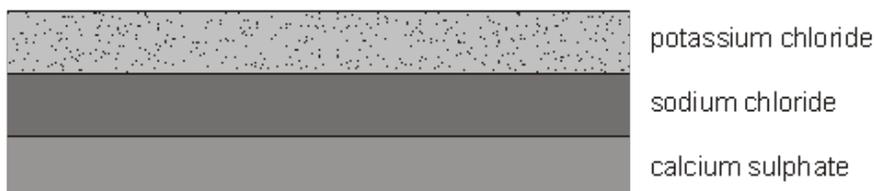
Explain your answer.

.....

.....

1 mark

(b) The water in a lake had the three salts dissolved in it. The water evaporated from the lake and the salts were deposited in layers in the order shown below.



Look at the graph above.

- (i) What evidence is there that these three salts were deposited at a temperature above 25°C?

.....

1 mark

- (ii) In what order would the salts be deposited at 10°C?

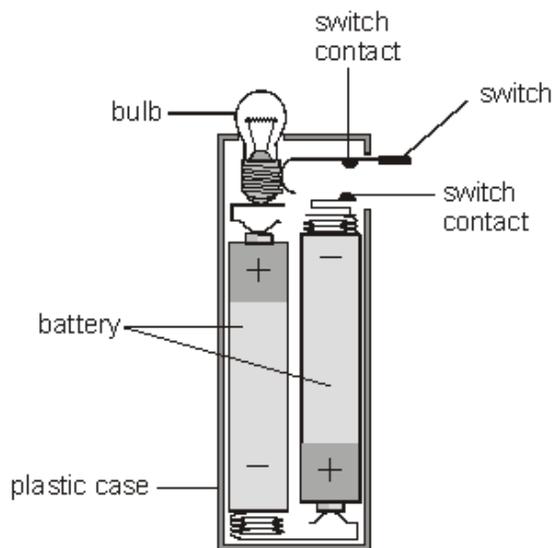
top.....

middle.....

bottom.....

1 mark
maximum 6 marks

- Q11.** (a) The drawing below shows the parts of a torch.

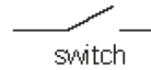
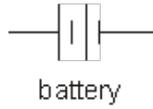
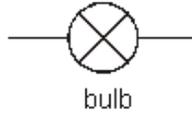


- (i) Paul closed the switch.
Why did this turn on the torch?

.....
.....

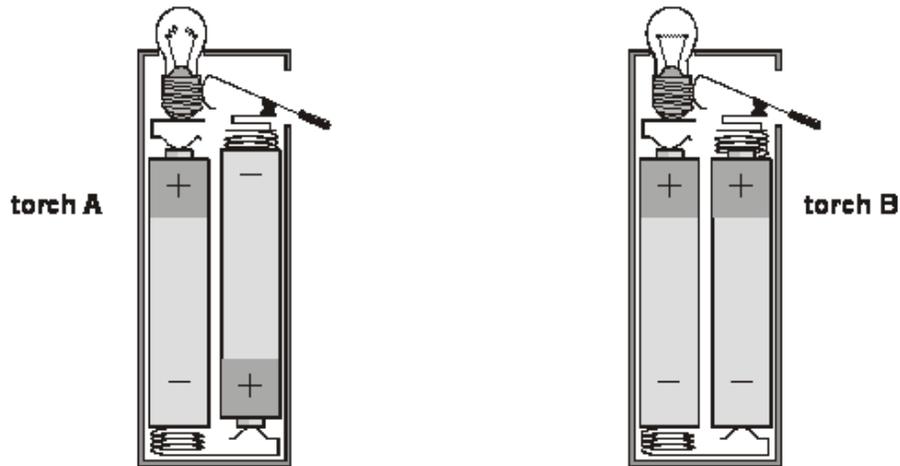
1 mark

- (ii) The diagrams below show symbols for a battery, a bulb and a switch. Connect the symbols to make a series circuit for the torch.



1 mark

- (b) The drawings below show two other torches. In both torches, the bulbs will **not** light even when Paul closes the switches.



Look carefully at the drawings.

- (i) Why is the circuit of torch A **not** complete?

.....

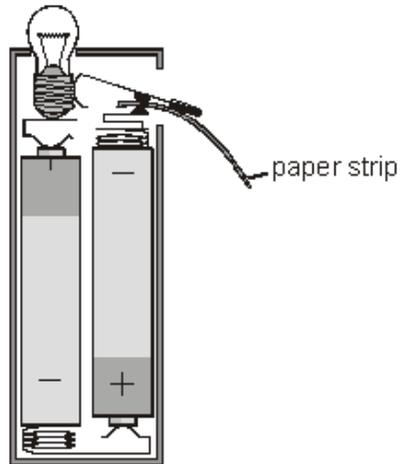
1 mark

- (ii) What could you do to torch B to get the bulb to light?

.....

1 mark

- (c) When Paul bought his torch there was a paper strip between the contacts of the switch as shown below.

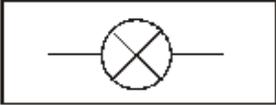
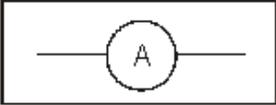


Paul had to remove the paper strip before he could turn the torch on.
Give the reason for this.

.....
.....

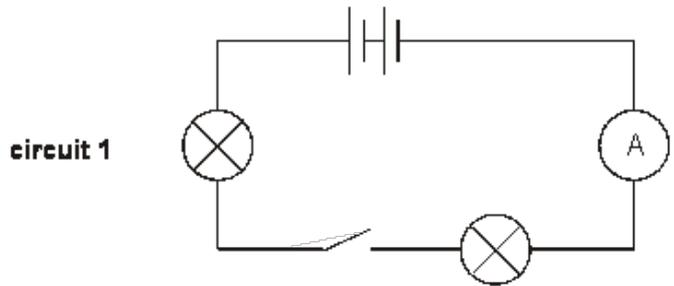
1 mark
maximum 5 marks

Q12. (a) Draw a line from each circuit symbol below to the correct name.
Draw only four lines.

circuit symbol	name
	<input type="text" value="ammeter"/>
	<input type="text" value="switch"/>
	<input type="text" value="motor"/>
	<input type="text" value="battery"/>
	<input type="text" value="bulb"/>

3 marks

(b) Fred made **circuit 1** as shown below.

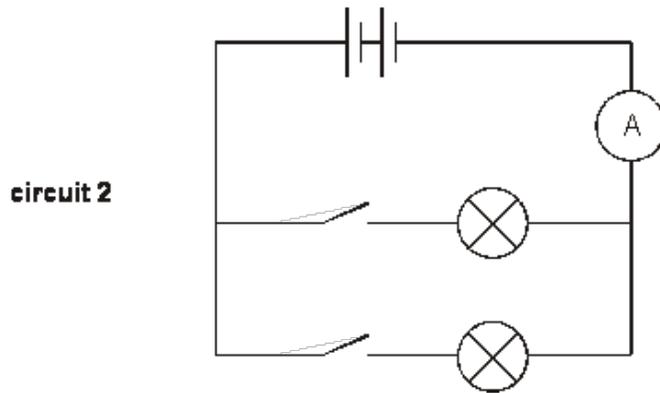


Give the name of the part that is the energy source for the circuit.

.....

1 mark

(c) Fred then made **circuit 2** as shown below.



In the table below, tick a box to show whether **circuit 1** and **circuit 2** are series or parallel circuits.
Tick only **two** boxes.

	series	parallel
circuit 1	<input type="checkbox"/>	<input type="checkbox"/>
circuit 2	<input type="checkbox"/>	<input type="checkbox"/>

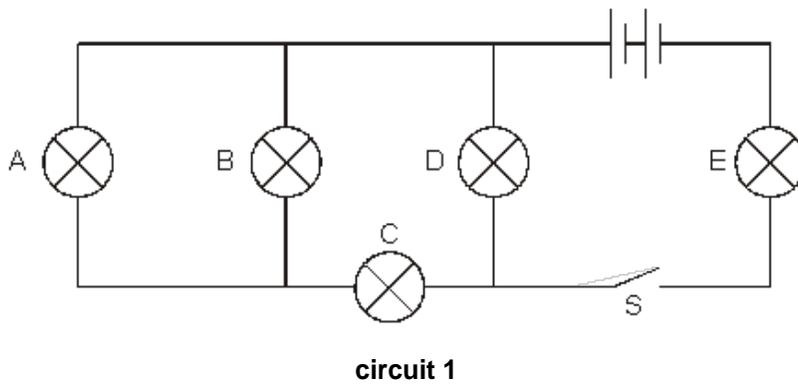
1 mark

(d) What metal is usually used for wires in electric circuits?

.....

1 mark
maximum 6 marks

Q13. (a) Max built **circuit 1** as shown below.



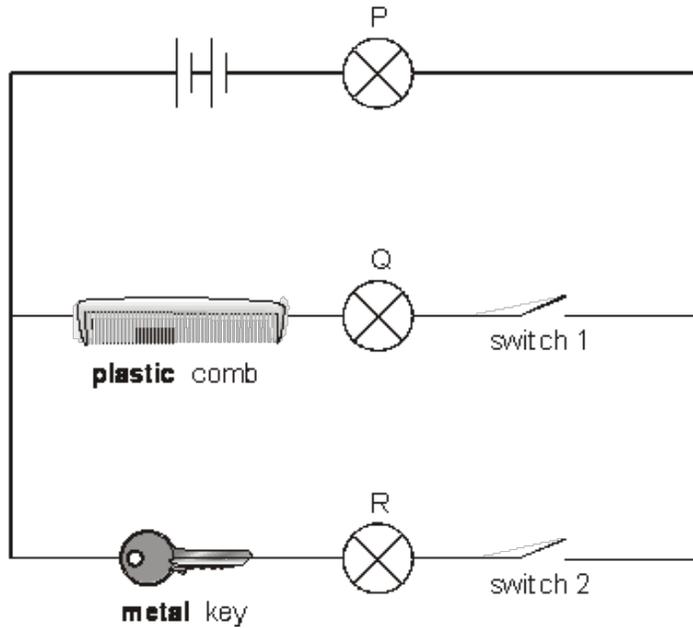
He closed the switch, S, and all the bulbs came on.
 One of the bulbs then broke and **all** the bulbs went off.

Which bulb must have broken?
 Give the letter.

.....

1 mark

- (b) Max built **circuit 2** as shown below.
 He connected a plastic comb and a metal key in different parts of the circuit.



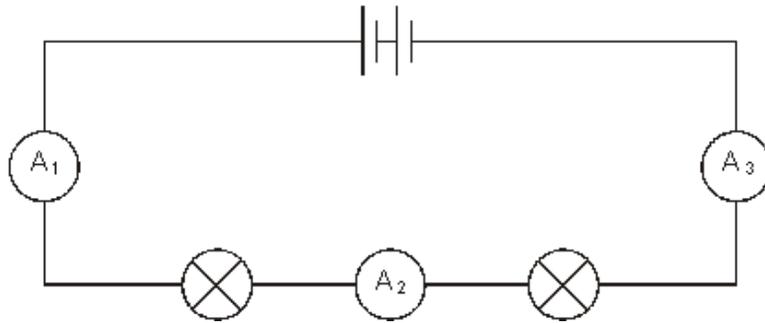
circuit 2

Look carefully at **circuit 2**.
 Complete the table below to show which bulbs in circuit 2 will be on or off when different switches are open or closed.
 Write **on** or **off** in the boxes below.

switch 1	switch 2	bulb P	bulb Q	bulb R
open	open	off	off	off
open	closed			
closed	open			

2 marks

(c) Max built **circuit 3** using a battery, two bulbs and three ammeters.



circuit 3

The current reading on ammeter A_1 was 0.8 amps.

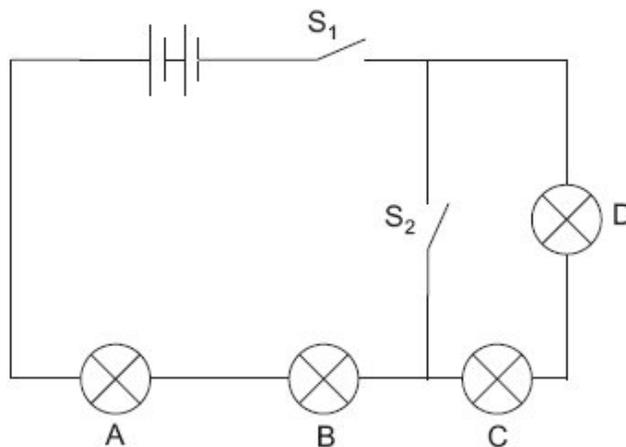
What would be the reading on ammeters A_2 and A_3 ?

Place **one** tick in the table by the correct pair of readings.

reading on ammeter A_2 (amps)	reading on ammeter A_3 (amps)	correct pair of readings
0.8	0.8	
0.8	0.4	
0.4	0.8	
0.4	0.4	

1 mark
maximum 4 marks

Q14. Lorna built the circuit drawn below. All the bulbs are identical.

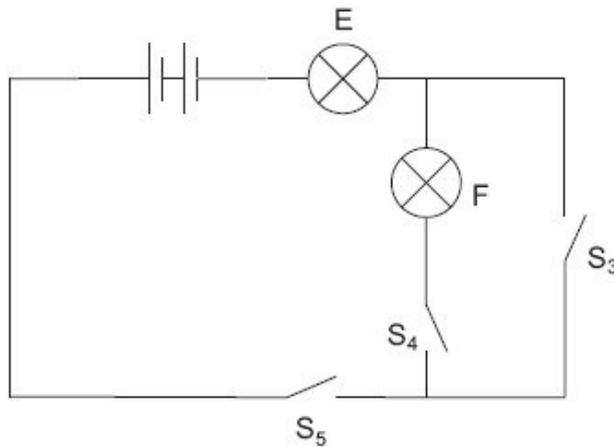


(a) Complete the table below by writing **on** or **off** for each bulb.

switch		bulb			
S ₁	S ₂			A	B
open	open			off	off
open	closed				
closed	open				
closed	closed				

3 marks

(b) Lorna then built a different circuit as shown below.



How could Lorna get both bulbs to light at the same time in this circuit?

.....

1 mark
 maximum 4 marks

M1.

substance	passes from the mother's blood to the baby's blood	passes from the baby's blood to the mother's blood	does not pass between the mother's blood and the baby's blood
poisons from cigarette smoke	✓		
oxygen	✓		
digested food	✓		
carbon dioxide		✓	

1

1

1

1 (L3)

[4]

M2.

(a) (i) • sperm

1 (L3)

(ii) • testis
accept 'testes'

1 (L4)

(b) (i) • ovum **or** egg

1 (L3)

(ii) • ovary
accept 'ovaries'

1 (L4)

(c) fertilisation

1 (L3)

(d) (i) • foetus

1 (L4)

(ii) • uterus

1 (L3)

[7]

- M3.** (a) any **two** from
both answers are required for the mark
- less **or** no competition for food
 - plenty of food **or** water **or** they get fed
*accept 'good **or** balanced diet'*
'they are looked after' is insufficient
 - they have shelter
accept 'protected from bad weather'
'protection' is insufficient because it is not specific
 - veterinary **or** medical treatment
accept 'they are vaccinated'
'they get fewer diseases' is insufficient
*do **not** accept 'they are less likely to get a disease'*
accept 'they are kept healthier'
'they are healthier' is insufficient
 - they are less likely to be injured **or** killed **or** there is no hunting of lions
accept 'they do not fight as much'
accept 'there are no predators of lions'
- 1 (L5)
- (b) (i) • an appropriate line of best fit
*accept a curved **or** straight line*
- 1 (L6)
- (ii) any **one** from
- animals with longer pregnancies live longer
 - the shorter the pregnancy the shorter the life span
accept 'the shorter the life span the shorter the pregnancy'
a comparative answer is required
- 1 (L5)
- (c) (i) • all three points plotted correctly
accept a tolerance of \pm half a small square
if all three points are correct, award two marks
*if one **or** two points are correct, award one mark*
- 2 (L5)

- (ii) • no ✓
if more than one box is ticked, award no mark
both the answer and the correct explanation
 are required for the mark

any **one** from

- the data is more scattered
accept 'they do not go up in a straight line'
- there is no link between the number of days pregnant
 and the expected life span
accept 'they do not fit the line of best fit'
- the human has the longest life span but the shortest pregnancy
- the giraffe has the shortest life span but the longest pregnancy
*accept 'giraffes **or** horses have a longer pregnancy
 than humans but a shorter life span'*
- the (new) points show the longer the pregnancy the
 shorter the life span
accept the converse
accept 'they are opposite to the other results'

1 (L6)

[6]

M4. (a) • 9

1 (L5)

(b) (i) any **one** from

- it protects the baby
- it helps to maintain a constant temperature
- it allows the baby to move
accept 'it keeps it safe'
accept 'it keeps the baby warm'
accept 'it absorbs shocks'
*accept 'it protects against infection **or** disease'*

1 (L6)

- (ii) • muscles contract
accept 'contractions'
*'the uterus **or** it contracts' is insufficient*

1 (L6)

(c) any **one** from

- (through the) placenta
- (through the) umbilical cord
- (from the) mother's blood

ignore references to food

'through the blood' is insufficient

'it gets everything from the mother' is insufficient

*do **not** accept 'the mother breathes for the child'*

1 (L5)

(d) • alveolus

'air sac' is insufficient

1 (L6)

[5]

M5. (a) (i) any **one** from

- menstruation
- the lining of the uterus is shed

accept 'the period'

accept 'the lining of the uterus breaks up'

accept 'the wall of the uterus breaks down'

*do **not** accept 'the uterus is shed'*

'the wall of the uterus breaks' is insufficient

***both** the answer and the correct explanation are required for the mark*

1 (L7)

(ii) a day from day 14 to day 18

accept 'in the middle'

*do **not** accept 'around day 14'*

any **one** from

- it is just after ovulation **or** day of ovulation
- that is when an egg is likely to be in the oviduct **or** fallopian tube
- that is just after an egg is released
- an egg is released on day 14

accept 'that is when an egg is released'

'it is in the middle of the cycle' is insufficient

1 (L7)

(iii) any **one** from

- so that a fertilised egg can be implanted
- to receive an egg

1 (L7)

(b) (i) • a line which continues to rise **or** remains horizontal after day 28
*accept a line rising **or** remaining horizontal after day 1*

1 (L7)

(ii) any **one** from

- menstruation stops
*accept 'the embryo **or** foetus **or** baby needs a blood supply'
'provides support' is insufficient*
- so the ovum **or** embryo will implant
accept 'the lining is not shed'

1 (L7)

[5]

M6. (a) E D A B C

all five letters must be in the correct order

1 (L3)

(b) to measure volume

*accept 'to make sure they used the same volume
of water in each beaker'
accept 'to measure amount of water'
accept 'to measure the volume of salt **or** sugar'
'to measure salt **or** sugar' is insufficient*

1 (L3)

(c) any **one** from

- they used the same volume of water
*accept 'they used the same amount of water'
accept 'they stirred the same number of times'
accept 'they stirred at the same speed'
accept 'they stirred for the same time'
'they stirred it' is insufficient*

1 (L4)

- (d) (i) any **one** from
- you might not get the same mass each time
*accept 'you might not get the same amount of salt **or** sugar'*
 - you will not know how much was added
*accept 'it is not precise **or** a measurement'*
accept answers which suggest that using a spatula is not a precise measurement
- 1 (L4)

- (ii) any **one** from
- measure the mass
*accept 'measure weight' **or** 'weigh it'*
accept 'use a balance or scales'
 - measure the number of grams
accept 'use grams'
accept 'use a measuring cylinder'
accept 'level it with a knife'
- 1 (L4)

- (e) from 1 – 31 inclusive
- 1 (L3)

[6]

- M7.** (a) (i) • filtration ✓
if more than one box is ticked, award no mark
- 1 (L3)
- (ii) • A: sand
accept 'residue'
- 1 (L3)
- (iii) • B: filter paper
*accept 'paper' **or** 'filter'*
*do **not** accept 'funnel' **or** 'filter funnel'*
- 1 (L4)

- (b) (i) • 100 1 (L4)
- (ii) it had evaporated
accept 'it went into the air'
*do **not** accept 'it disappeared'* 1 (L3)
- (iii) salt
accept 'sodium chloride'
*accept 'salts' **or** 'minerals' **or** 'crystals'* 1 (L4)

[6]

- M8.** (a) (i) pale blue yellow red
answers may be in any order
all three answers are required for the mark
*do **not** accept 'blue' for 'pale blue'* 1 (L5)
- (ii) 2
 because there are two spots on the paper
accept 'there are two colours from the green ink'
accept 'because they are straight up from the green ink'
accept 'it has dark blue and yellow'
accept 'it shows two'
both the answer and the correct explanation are required for the mark 1 (L5)
- (iii) pencil
both the answer and the correct explanation are required for the mark
- any **one** from
- because ink from the felt-tip pen is soluble **or** will dissolve in water
accept 'the ink will also produce colours'
'the pencil has no ink in it' is insufficient
 - because pencil will not spread out **or** dissolve **or** run **or** smudge
accept 'the ink expands' 1 (L5)

(b) any **one** from

- the ink would not dissolve in water
accept 'the ink was water resistant or permanent or waterproof'
- the ink would dissolve in ethanol
- ethanol is a solvent for the ink
*accept 'ethanol is a suitable solvent'
accept 'ethanol can absorb the ink'
accept 'ethanol washes out the ink'
accept 'some substances will dissolve in one solvent but not another'*

1 (L6)

[4]

M9. (a) (i) 100

accept answers from 98 to 100

1 (L5)

- (ii) to condense the water vapour
*accept 'to change the gas into liquid'
or 'condensation' or 'condenser'
accept 'to cool the vapour into water'
do **not** accept 'to cool the vapour or water'*

1 (L5)

(iii) distillation **or** distilling

1 (L5)

(b) (i) evaporating **or** boiling

1 (L6)

melting

1 (L6)

freezing

1 (L6)

condensing

1 (L6)

(ii) A
accept 'boiling' 1 (L6)

D
accept 'condensing'
accept the letters written in the correct places on the diagram 1 (L6)

[9]

M10. (a) (i) any **two** from

- (the solubility of) potassium chloride and sodium chloride increase
- the difference is smaller at low temperatures
or greater at higher temperatures
accept 'they both increase'
ignore references to calcium sulphate
- at lower temperatures potassium chloride is less soluble than sodium chloride
or at high temperatures potassium chloride is more soluble than sodium chloride
accept the converse
- sodium chloride changes less than potassium chloride
accept 'the line for potassium chloride is steeper'
or *'the line for sodium chloride is flatter'*
accept 'sodium chloride is affected less'
or *'potassium chloride is affected more'*
accept 'sodium chloride hardly changes but potassium chloride increases'
accept 'between 23° and 27° C they are the same'
- at 25°C they are equally soluble
accept, for one mark, an answer stating the solubility of both salts at a given temperature other than 25°
accept for two marks 'the solubility of potassium chloride increases more than sodium chloride'
or *'sodium chloride increases less than potassium chloride'*

2 (L7)

(ii) any **one** from

- crystals **or** solid **or** particles would appear
- potassium chloride (would be precipitated)
*accept 'it goes cloudy **or** white'*

1 (L7)

- any **one** from
- cooler water cannot dissolve as much potassium chloride
*accept 'less dissolves' **or** 'at 90° C more dissolves'*
- solubility is less at a lower temperature
- the solubility decreases

1

(b) (i) any **one** from

- above 25 °C sodium chloride is deposited before potassium chloride
*accept 'below 25°C there would be a different order'
accept 'because of the order in which they fell'*
- below 25 °C potassium chloride would be deposited before sodium chloride
accept 'below 25 °C sodium chloride would be above potassium chloride'
- below 25 °C the order would be calcium sulphate, potassium chloride, sodium chloride
accept 'below 25 °C sodium chloride would be at the top'
- calcium sulphate is the least soluble followed by sodium chloride and then potassium chloride
accept 'the least soluble was deposited first'

1 (L7)

(ii) • sodium chloride

accept sodium

potassium chloride

accept 'potassium'

calcium sulphate

accept calcium

answer must be in the correct order

all three answers are required for the mark

1 (L7)

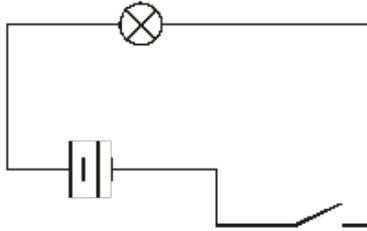
[6]

M11. (a) (i) any **one** from

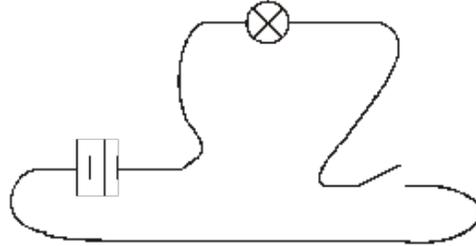
- it let the current **or** electricity flow
- current could flow through the bulb
- it completed the circuit
accept 'the contacts came together'

1 (L3)

(ii) all three components must be correctly connected in series



accept



*a mark may be awarded for any correctly connected circuit drawn with straight **or** curved wires
award a mark for a correct circuit diagram in which the pupil has drawn the symbols instead of connecting the printed symbols*

1 (L3)

(b) (i) any **one** from

- the bulb is broken **or** blown
- the filament is broken
accept 'the coil is broken'
the bulb is not connected properly' is insufficient

1 (L3)

(ii) turn one of the cells around

accept 'turn a battery round'
accept 'turn the battery'
accept 'put the batteries in the right way'
'turn the batteries round' is insufficient
the mark may be awarded for a description of the fault
eg 'both batteries are the same way up'

1 (L3)

(c) any **one** from

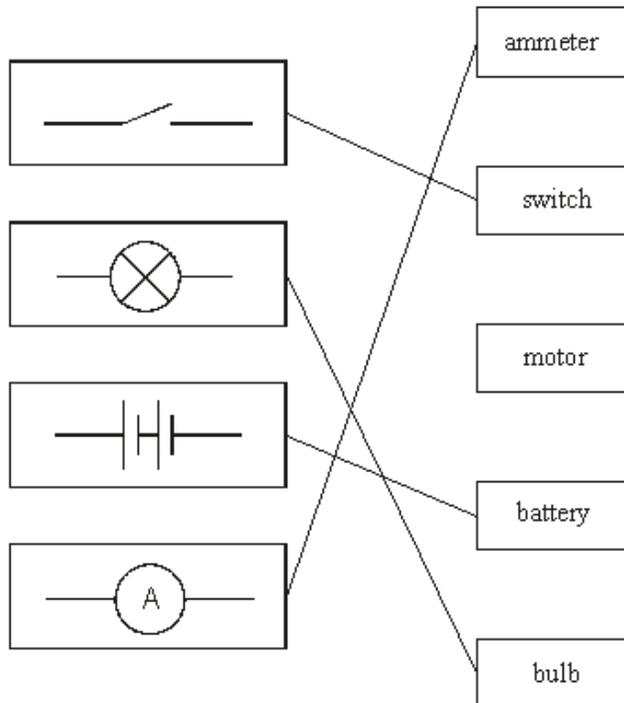
- it stopped current from flowing
accept 'to stop the batteries running down'
- paper does not conduct **or** is an insulator
- the circuit was broken **or** incomplete
accept 'to stop the contacts coming together'
- so that the circuit can be completed

1 (L3)

[5]

M12.

(a)



all four lines are required for three marks
any **three** lines are required for two marks
any **two** lines are required for one mark
if more than one line is drawn from a symbol,
do **not** give credit for that symbol

3 (L4)

(b) battery

accept 'cell' or 'cells'
*accept 'power supply' **or** 'power pack'*

1 (L4)

(c)

	series	parallel
circuit 1	✓	
circuit 2		✓

both ticks are required for one mark
if more than one box is ticked in any row, award no mark

1 (L4)

(d) copper

accept 'aluminium'
accept 'gold'
do **not** accept any other metal

1 (L4)

[6]

M13. (a) • E

1 (L5)

(b)

	P	Q	R
	off	off	off
•	on	off	on
•	off	off	off

award one mark for each correct row

2 (L5)

(c) • * 0.8 0.8 ✓

if more than one box is ticked, award no mark

1 (L6)

[4]

##

(a)

A	B	C	D
<i>off</i>	<i>off</i>	<i>off</i>	<i>off</i>
off	off	off	off
on	on	on	on
on	on	off	off

award a mark for each correct row

3 (L6)

(b) any **one** from

- close S_4 and S_5
- only leave S_3 open

accept 'close 4 and 5'

accept 'only leave 3 open'

'leave switch 3 or 3 open' is insufficient

1 (L6)

[4]

