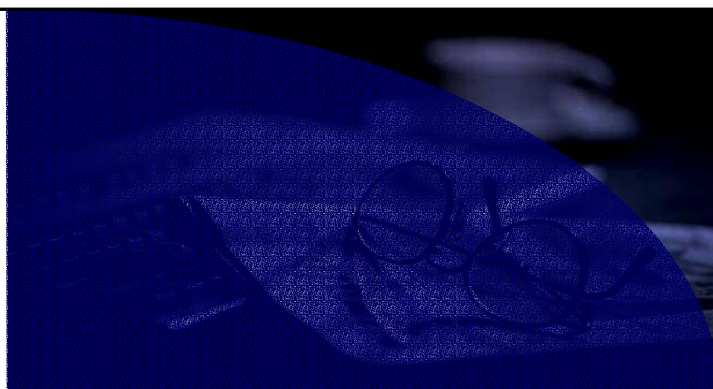


assessment for learning

year 8...mark scheme



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8E Atoms and elements...mark scheme

Assessment for learning...year 8 (level 3-6)

Question 1:

- (a) by heating with carbon **or** carbon monoxide **or** coke 1

*accept 'smelting' **or** 'the blast furnace' **or** 'by reduction'*

*do **not** accept 'melting' **or** 'heating' without a reference to reduction **or** to carbon*

- (b) it reacts with oxygen **or** water vapour **or** air 1

*accept 'oxidises' **or** 'it is very reactive' **or** 'it burns'*

*do **not** accept 'it explodes in air'*

- (c) (i) any **one** from 1

- magnesium
- aluminium
- zinc

*do **not** accept 'sodium' **or** 'calcium'*

both a metal and an appropriate reason are required for the mark to be awarded

- (ii) **either** 1

- sodium **or** calcium because they are too reactive

or

- tin **or** lead **or** copper because it is too unreactive **or** less reactive than steel

accept 'because it lets steel corrode'
do not accept 'because it is too expensive' or 'it is unreactive'

- (d) (i) aluminium reacts with acids 1
accept 'reacts with jam' or 'aluminium corrodes'
do not accept 'aluminium is too reactive' or 'aluminium reacts'
- (ii) any **one** from 1
- to prevent iron **or** steel from reacting with acids
 - tin does not react with acids
accept 'tin is unreactive'
 - tin is less reactive than iron **or** tin is not very reactive
do not accept 'to stop rusting'

[6]

Question 2:

- (a) oxygen 1
- (b) (i) sulphuric acid 1
do not accept 'oxide'
- (ii) use a burning splint which lights the hydrogen **or** makes it go pop 1
accept 'it goes pop when lit'
do not accept 'use a glowing splint'
- (iii) **the mark is for concentrating the solution, or for a process which leads to crystallisation occurring** 1
- any **one** from
- warm it **or** heat it gently
do not accept 'heat it'
 - leave it to stand
accept 'leave by the window'
 - let the water evaporate
 - make it more concentrated
do not accept 'heat it until all the water has gone'
or 'heat until dry'

[4]

Question 3:

- (a) 1

element	compound
Ar	CO ₂
N ₂	H ₂ O
Ne	
O ₂	

all six formulae are required for the mark

(b)

1

atom	molecule
Ar	N ₂
Ne	O ₂
	CO ₂
	H ₂ O

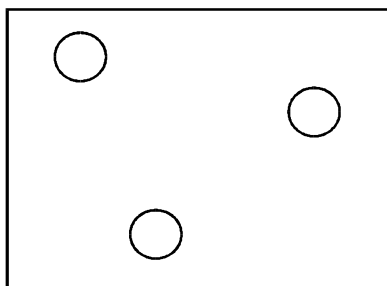
all six formulae are required for the mark

(c) Ne **or** neon

1

(d) up to ten randomly arranged particles spaced throughout the box
accept just one particle

1



do not accept an empty box

most of the particles are not in contact with each other

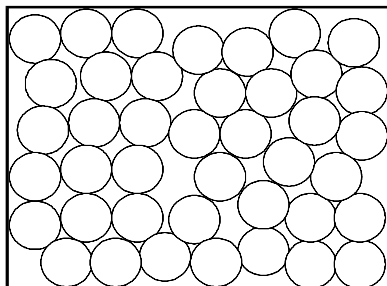
1

the box almost full of particles of neon, more than 50% of which are touching each other

1

the particles are randomly arranged

1



if the level of liquid is drawn then accept the circles drawn correctly below the liquid level

[7]

Question 4:

- (a) (i) any **one** from 1
- gold
 - iron
 - magnesium
- (ii) any **one** from 1
- sulphur
 - phosphorus
- (iii) iron 1
- (iv) iron sulphide 1
- (b) magnesium sulphide 1
- do not accept 'magnesium sulphite' or 'magnesium sulphate'*

[5]

Question 5:

- (a) (i) iron 1
- do not accept '1540°C'*
- (ii) mercury 1
- do not accept '-37°C'*
- (b) solid *to a* liquid 1
- answers must be in the correct order*
- both** answers are required for the mark*
- (c) 5 1
- (d) (i) sodium 1
- (ii) gold 1

[6]