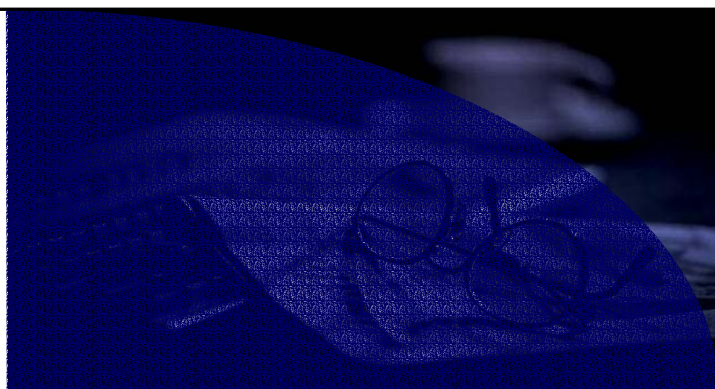


assessment for learning
year 9...mark scheme



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9E Reactions of metals and metal compounds...mark scheme

Assessment for learning...year 9 (level 3-6)

Question 1:

- (a) (i) alkaline 1
(ii) forms a solution with a pH of about 8.5 1
it is not poisonous 1
answers may be in either order
accept 'pH 8.5' or 'alkaline'
- (b)

nitric acid

 →

sodium nitrate

 1
both complete names are required for the mark
- (c) carbon dioxide 1
accept 'CO₂'

[5]

Question 2:

- (a) B D C 1
all three letters in the correct order are required for the mark
- (b) (i) oxygen 1
(ii) hydrogen 1
- (c) it's the only one which forms an acidic oxide 1
accept 'it has an acidic oxide'
do not accept 'it burns to give an acid'

- (d) any **one** from 1
- sodium
 - potassium
 - lithium
 - barium

accept 'caesium' or 'rubidium' or 'calcium'
do not accept 'aluminium' or 'magnesium'

[5]

Question 3:

- (a) (i) blue 1
- (ii) black 1

- (b) copper oxide + sulphuric acid → copper sulphate + water 1

*the whole word equation is
 required for the mark
 reactants may be in either
 order
 ignore references to
 oxidation states*

- (c) to separate **or** remove the copper oxide 1

accept 'to purify the solution'
*accept 'to separate or remove
 the black solid' accept 'to
 separate the solid from the
 liquid'*
*do not accept 'because no
 more solid would dissolve'*

[4]

Question 4:

- (a) (i) calcium hydroxide 1
- (ii) alkaline 1

accept 'strongly alkaline'

- (b) (i) any **one** from 1
- because bond strength is less than that of HBr **or** less than 366 kJ/mol

*accept 'the bond is not strong
 enough'*

- the bond strength is not enough to keep the atoms together
*accept 'the thermal energy is
 greater than the bond
 strength'*

- bond strength decreases as you go down the group **or** as the period increases
- the compounds become increasingly unstable as you go down the group

accept 'it is unstable'

accept 'iodine is formed'

- (ii) any **one** from 1
- it decreases from HF to HI **or** down the group
 - it increases from HI to HF **or** up the group
- accept 'as the period goes up
the strength goes down'*
- (iii) hydrogen fluoride **or** HF 1

[5]

Question 5:

- (a) it neutralises it 1
- accept 'neutralisation'
accept 'it produces heat'*
- (b) (i) 3 1
- (ii) 9 1
- (c) nitric acid → water 2

*answers must be in the
correct order*

[5]