



## Mark schemes

### Q1.

- (a) (i) C 1 (L3)
- (ii) A 1 (L3)
- (iii) D 1 (L3)
- (b) igneous rock ✓  
*if more than one box is ticked, award no mark* 1 (L4)
- (c) water is heated to form water vapour ✓  
*if more than one box is ticked, award no mark* 1 (L4)
- (d) (i) skeleton **or** bones  
*accept 'spine' **or** 'backbone' **or** 'ribs' **or** 'skull'*  
*accept 'scales'* 1 (L3)
- (ii) fossils 1 (L4)

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### Q2.

- (a) (i) weathering ✓  
*if more than one box is ticked, award no mark* 1 (L3)
- (ii) any **one** from
- it is hard **or** harder  
*accept 'limestone is softer'*  
*'granite **or** it is solid' is insufficient*
  - it is resistant to acid rain  
*accept 'it is resistant'*  
*accept 'limestone is affected by acid rain'*
  - it is less permeable or porous  
*accept 'limestone is more permeable **or** porous'*  
*accept 'granite is stronger'*
  - it is less easily weathered  
*accept 'granite does not weather **or** erode'* 1 (L4)
- (b) (i) any **one** from
- coal
  - gas

- accept 'methane'*
- oil  
*accept 'petrol' or 'diesel' or 'kerosene'*
  - peat  
*accept 'turf'*
- 1 (L3)
- (ii) All fossil fuels are a source of energy ✓  
*if more than one box is ticked, award no mark*
- 1 (L3)
- (iii) corrosion ✓  
*if more than one box is ticked, award no mark*
- 1 (L4)
- (iv) paint  
*accept 'grease' or 'oil'*  
*accept 'plastic' or 'wax' or 'polish'*  
*accept 'varnish'*  
*accept 'zinc' or 'galvanise it'*  
*'waterproof coating' is insufficient*  
*'something to stop them reacting' is insufficient*
- 1 (L4)

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**Q3.**

- (a) (i) any **one** from
- the sea is nearer the church
  - part of the church has gone
  - part of the cliff has gone  
*accept 'it has worn away' or 'it has been eroded'*  
*or 'it has collapsed'*
- 1 (L3)
- (ii) the sea ✓
- 1 (L3)
- (b) any **one** from
- they are rolled around on the beach
  - they rub against each other
  - they collide with each other  
*accept 'the corners get knocked off'*  
*accept 'they are eroded'*
- 1 (L4)
- (c) (i) weathering ✓  
*if more than one box is ticked award no mark*
- 1 (L4)
- (ii) acid rain

accept 'acid' **or** 'rain' **or** 'water' **or** 'carbon dioxide'  
**or** 'sulphur dioxide' **or** 'soot'

do **not** accept 'greenhouse gases'

1 (L4)

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**Q4.**

(a) D

1 (L3)

(b) (i) solid

1 (L3)

(ii) liquid

1 (L3)

(c) (i) sedimentary

1 (L4)

(ii) igneous

1 (L4)

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**Q5.**

(a) any **one** from

- it absorbed water
- its mass **or** weight increased

*accept 'it soaks up water'*

*accept 'the mass **or** weight of the granite  
**or** marble did not increase **or** change'*

*'granite **or** marble did not change' is insufficient*

1 (L5)

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

- it would crack
- it would crumble **or** break up

*accept 'the grains would move apart'*

1 (L5)

(ii) • weathering

*accept 'freeze-thaw'*

*accept 'erosion'*

1 (L5)

(c) any **one** from

- granite would not react with acid rain

*accept 'granite **or** it is not affected by acid rain **or** acid'*

*accept 'granite would not erode or crumble **or** corrode'*

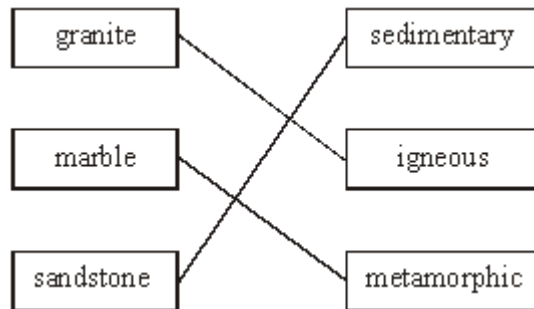
- marble reacts with acid rain

*accept 'marble is affected by acid rain **or** rain'*

accept 'marble would erode'  
 accept 'rain **or** pollution might have acid in it'  
 'granite does not react with air pollution' is insufficient  
 do **not** accept 'it would erode'

1 (L6)

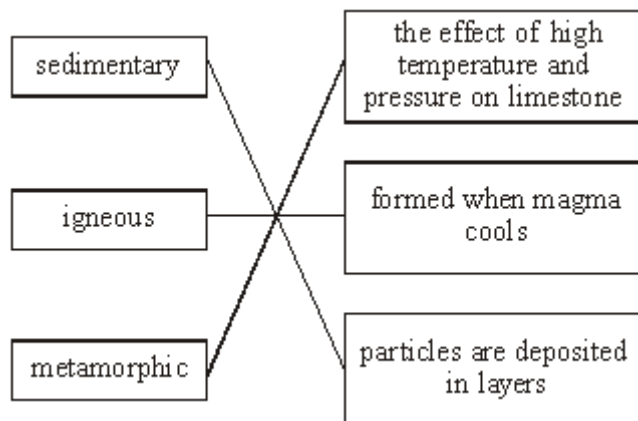
(d) (i) •



if all three lines are correct, award two marks  
 if one **or** two lines are correct, award one mark  
 if more than one line is drawn from a name of a rock,  
 do not credit that line

2 (L5)

(ii) •



if all three lines are correct, award two marks  
 if one **or** two lines are correct, award one mark  
 if more than one line is drawn from a name of a rock,  
 do not credit that line

2 (L6)

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**Q6.**

(a) any **one** from

- pieces are broken off
- the cliff is worn away
- it crumbles

accept 'erosion'

1 (L5)

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

- remains **or** impressions of plants **or** animals which are very old

accept 'a plant **or** animal buried for thousands of years'

- remains **or** impressions of plants **or** animals in a rock  
accept 'remains **or** impressions of plants  
**or** animals **or** living things'  
1 (L5)
- (ii) sedimentary  
1 (L5)
- (c) (i) cooling of **or** crystallisation from magma **or** lava **or** molten rock  
accept 'from magma **or** lava'  
accept 'from volcanoes'  
'by heating' is insufficient  
1 (L5)
- (ii) any **one** from
  - they were formed in conditions where plants  
**or** animals **or** living things could not exist
  - magma is too hot for plants **or** animals to survive  
1 (L6)
- (iii) any **one** from
  - larger in granite  
accept 'larger' **or** 'bigger'
  - smaller in basalt  
1 (L6)

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### Q7.

- (a) (i) • metamorphic  
1 (L5)
- (ii) • igneous  
1 (L5)
- (b) • when magma cools more quickly the crystals are smaller  
accept the converse  
accept 'in magma which cools faster the crystals are small'  
answers must include a comparison  
do **not** accept 'crystals are bigger when the rock cools slowly'  
1 (L6)
- (c) (i) • oxygen  
'O<sub>2</sub>' is insufficient  
1 (L5)
- (ii) • aluminium oxide  
accept 'aluminium trioxide'  
1 (L6)
- (iii) • 5  
1 (L6)
- (d) (i) any **one** from

- at the bottom
  - below copper  
*'less reactive' is insufficient*
- 1 (L6)

- (ii) • zinc chloride  
*accept 'ZnCl<sub>2</sub>'*  
*answers can be in either order*
- 1 (L6)

- hydrogen  
*accept 'H<sub>2</sub>'*  
*'H' is insufficient*
- 1 (L6)

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### Q8.

- (a) attrition **or** erosion  
*accept 'transport'*  
*do **not** accept 'physical weathering'*
- 1 (L6)

- (b) get rounded  
*answers may be in either order*  
*accept 'not as sharp **or** pointed' **or** 'get worn away'*
- 1 (L6)

- get smaller  
*accept 'get sorted into similar sizes'*
- 1 (L6)

- (c) step 4: deposition **or** sedimentation  
*accept 'sediment forms on sea floor'*  
*accept 'settling'*
- 1 (L6)

- step 5: compaction **or** compression  
*accept 'pressure' or 'cementation'*  
***or** 'lithification' **or** 'sediments turn to rock'*
- 1 (L6)

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### Q9.

- (a) when water freezes it expands
- 1 (L7)

- bits are forced off the sandstone **or** cracks are forced open  
*accept 'cracks are opened up'*
- 1 (L7)

- (b) (i) answers may include processes which are sometimes classified as erosion award one mark for the correct statement and one mark for the correct explanation

**either**

expansion and contraction due to rapid changes in temperature  
*accept 'due to hot days and cold nights'*

**or**

rocks split open due to growth of plant roots

**or**

rocks are pitted **or** cracked due to wetting and drying  
*accept 'material hitting the surface'*  
**or 'attrition' or erosion due to wind or water**  
**or animals or people or rain'**

2 (L7)

(ii) acid rain **or** rain **or** pollutants

1 (L7)

reacting with substances in the rock

1 (L7)

*accept 'oxidation' or 'rusting'*

*accept 'reacts with or dissolves or breaks down rock*  
**or named rock'**

*do not accept 'wears away the rock'*

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### Q10.

(a) **both the type of rock and the evidence for its formation are required for each mark**

- igneous, because igneous rock comes from volcanoes  
*accept 'igneous, because there are volcanoes'*

1 (L7)

any **one** from

- metamorphic, because volcanoes show there were high temperatures  
*accept 'metamorphic, because volcanoes show there had been molten rock'*
- metamorphic, because mountains show that the rocks have been under high pressure  
*accept 'metamorphic, because mountains show there has been land movement'*
- sedimentary, because there are river valleys and rivers produce sediment  
*accept 'sedimentary, because there are river valleys'*  
**or 'sedimentary, because rivers produce sediment'**

2 (L7)

(b) it will break them up **or** split them **or** weather them  
*accept 'it will cause onion skin weathering'*

1 (L6)

because they will expand and contract

1 (L6)



