**Rocks and minerals (answers)**

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| Instructions to students  • You have 50 minutes to complete the test.  • Please answer all questions in the spaces provided.  • There is to be no talking during the test. | Marks  Section I: Multiple-choice questions: 5 marks  Section II: Short-answer questions: 12 marks  Section III: Extended-response questions: 8 marks  Total: 25 marks |

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| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Score: /25  Grade: % |
| Comments: | |

Section I: Multiple-choice questions

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| For each question, circle or highlight the correct answer.  1 Rocks that form from cooling magma underground are called: | |  |
| A | extrusive metamorphic rocks. |
| B | intrusive metamorphic rocks. |
| C | extrusive igneous rocks. |
| D | intrusive igneous rocks. |
| 2 The rock cycle shows how: | | |
| A | metamorphic rocks are formed from sedimentary rocks, which are formed from igneous rocks. | |
| B | weathering and erosion eventually breaks down all rocks and one day there won’t be any rocks left. | |
| C | the Earth’s minerals are continually recycled between igneous, sedimentary and metamorphic rocks. | |
| D | sedimentary, igneous and metamorphic rocks are formed from unrelated processes. | |
| 3 Human activities, including the construction of buildings, roads and pavements have altered the rate of the rock cycle. Which of the following geological process could be attributed to human activities? | | |
| A | Increased flooding and soil erosion. | |
| B | Increased formation of metamorphic rocks. | |
| C | Decreased volcanic activity resulting in fewer igneous rocks | |
| D | Decreased chemical weathering due to acid rain. | |

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| 4 Precious gemstones are usually 8 or higher on the Mohs scale of hardness. These properties explain why gemstones: | |
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| A | break smoothly along predictable, straight planes. |
| B | allow light to pass through them. |
| C | can be easily cut into any shape. |
| D | do not scratch easily and hold their polished surfaces for a very long time. |
| 5 Which one of the following best defines a mineral? | |
| A | Another name for gemstones. |
| B | A naturally occurring chemical compound with a specific composition. |
| C | Any naturally occurring chemical compound that contains a metal. |
| D | A rock that contains very high amounts of a metal or other valuable substance. |

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|  | Section I  Total marks:  /5 marks |

Section II: Short-answer questions

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| 6 Describe this piece of moonstone in terms of its properties of transparency, lustre and colour. | |
| This is a piece of moonstone, a type of mineral made of a compound containing sodium, potassium, aluminium and oxygen. | |
| Transparency: semi-transparent / translucent (1 mark)  Lustre: waxy / opalescent / pearly (1 mark)  Colour: white / grey (1 mark) | |
|  | /3 marks |
| 7 Provide an example of a biological rock and explain what it was made from. | |
| Either of following (1 mark for the name, 1 mark for the origin):  • Limestone – shells and hard parts of marine organisms  • Coal – fossilised plant remains | |
|  | /2 marks |

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| 8 Compare and contrast extrusive and intrusive rocks. | | |
| Both are types of igneous rock (1 mark).  Extrusive rock forms on the surface (1 mark) from cooling lava (1 mark).  Intrusive rock forms underground (1 mark) from cooling magma (1 mark). | | |
|  | | /5 marks |
| 9 Identify what type of sedimentary rock is shown below and how it was made. | | |
|  | | |
| Conglomerate rock (1 mark). Made up of different sized pebbles that have been cemented together by fast-flowing rivers (1 mark). | | |
|  | /2 mark | |
|  | Section II  Total marks:  /12 marks | |

Section III: Extended-response questions

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| 10 You have been asked to select a building material for a new construction and have narrowed the choice down to three minerals. Your final decision will be based on which of the minerals is the hardest.  Describe how you would determine the hardest mineral, without looking them up on the Mohs scale. | |
| Students’ answers will vary. Award 1 mark for each logical step for a maximum of 5 marks.  • Label the minerals A, B and C.  • Use mineral A to scratch minerals B and C and record the results.  • Use mineral B to scratch A and C and record the results.  • Use mineral C to scratch A and B and record the results.  • The hardest mineral will be able to scratch the other two without being scratched by either. | |
|  | /5 marks |

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| 11 What is comparative dating? Draw a diagram to accompany your response | |
| Comparative dating is used to determine the age of rocks, by using the different layers of sand or mud.  Diagrams should show that the oldest rock and fossils can be found on the bottom layer, and youngest deposited on top. | |
|  | /3 marks |
|  | Section III  Total marks:  /8 marks |