



B O A R D O F S T U D I E S
NEW SOUTH WALES

2009 HSC Earth and Environmental Science Marking Guidelines

Section I, Part A

Question	Correct Response
1	A
2	B
3	D
4	C
5	A
6	C
7	B
8	B
9	A
10	C
11	D
12	A
13	D
14	D
15	C

Section I, Part B**Question 16 (a)***Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Correctly names the structure	1

Question 16 (b) (i)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Correctly identifies the type of plate boundary	1

Question 16 (b) (ii)*Outcomes assessed: H8***MARKING GUIDELINES**

Criteria	Marks
• Gives a clear description of the tectonic process	3
• Links it clearly to the formation of the mountain range	
• Provides some understanding of the tectonic process and links it to the formation of the mountain range	2
• Recalls some relevant fact	1

Question 17 (a)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Gives one correct reason	1

Question 17 (b)*Outcomes assessed: H3***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Identifies a relevant technology• Describes a technology• Relates the technology to the prediction of earthquakes	3
<ul style="list-style-type: none">• Addresses two of the above criteria	2
<ul style="list-style-type: none">• Recalls some relevant fact	1

Question 17 (c)*Outcomes assessed: H4***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Describes an impact of an earthquake on the built environment• Describes one property of earthquakes• Links the impact to the property	3
<ul style="list-style-type: none">• Describes an impact of an earthquake OR <ul style="list-style-type: none">• Describes an effect this impact this has on the built environment	2
<ul style="list-style-type: none">• Identifies an impact of an earthquake OR <ul style="list-style-type: none">• Identifies an effect on the built environment OR <ul style="list-style-type: none">• Identifies one property of earthquakes	1

Question 18

Outcomes assessed: H7, H8

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates a detailed knowledge of subduction and growth of the Australian continent. • Clearly links the role of subduction to the growth of the continent. 	4
<ul style="list-style-type: none"> • Demonstrates a sound knowledge of subduction and growth of the Australian continent. • Attempts to relate subduction to growth of the continent. 	3
<ul style="list-style-type: none"> • Recalls some information about subduction and/or the growth of the Australian continent. 	1–2

Question 19 (a)

Outcomes assessed: H7, H13

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> • Draws a detailed cross-section of a subduction zone • Correctly labels key features 	3
<ul style="list-style-type: none"> • Draws a cross-section of a subduction zone with labels OR <ul style="list-style-type: none"> • Provides a diagram with key features correctly labeled 	2
<ul style="list-style-type: none"> • Provides some relevant information 	1

Question 19 (b)

Outcomes assessed: H2, H12

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> • Shows a clear understanding of accuracy and relates aspects of the data given to accuracy • Shows a clear understanding of reliability and relates aspects of the data given to reliability 	2
<ul style="list-style-type: none"> • Shows some understanding of accuracy or reliability 	1

Question 20 (a)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Names the responsible organism	1

Question 20 (b)*Outcomes assessed: H8***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Outlines the changes in both stromatolite abundance and distributionGives reasons for the changes in stromatolite abundance and distribution	3
<ul style="list-style-type: none">Outlines the changes in both stromatolite abundance and distribution OR <ul style="list-style-type: none">States reasons for the change in both stromatolite abundance and distribution OR <ul style="list-style-type: none">Identifies the change in either abundance or distribution and states a reason	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 20 (c)*Outcomes assessed: H7, H8***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Outlines the role of cyanobacteria in oxygen formationLinks oxygen to ozone formation	3
<ul style="list-style-type: none">Addresses ONE of the above criterion	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 21 (a)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Sketches in general terms TWO relevant characteristics of plants	2
<ul style="list-style-type: none">• Sketches in general terms ONE relevant characteristic of plants OR <ul style="list-style-type: none">• Identifies TWO relevant characteristics of plants	1

Question 21 (b)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Identifies a relevant feature of a terrestrial environment• Outlines a relevant feature of reptiles• Outlines a relevant feature of amphibians• Relates features of both to their relative success	4
<ul style="list-style-type: none">• Addresses three of the above criteria OR <ul style="list-style-type: none">• Shows an understanding of amphibians and reptiles with respect to the terrestrial environment	3
<ul style="list-style-type: none">• Provides some relevant information	1–2

Question 22 (a)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Names one relevant feature	1

Question 22 (b)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Outlines the function of the feature	2
• Identifies an advantage	
• Provides some relevant information	1

Question 23*Outcomes assessed: H1, H4, H10***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Gives characteristics of an alternative pest management strategy• Comments on features of pesticide use• Relates the alternative strategy to agricultural pests• Makes a judgment about the alternative strategy	4
<ul style="list-style-type: none">• Addresses three of the above criteria	3
<ul style="list-style-type: none">• Provides some relevant information	1–2

Question 24 (a)*Outcomes assessed: H10***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Identifies process X	1

Question 24 (b) (i)*Outcomes assessed: H10***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Identifies relevant process	1

Question 24 (b) (ii)*Outcomes assessed: H9***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Gives supporting argument for the suitability of the process	2
<ul style="list-style-type: none">• Provides some relevant information	1

Question 25*Outcomes assessed: H3, H6, H9***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Identifies two methods used to rehabilitate contaminated sitesProvides reasons why each method is suitable	4
<ul style="list-style-type: none">Identifies two methods used to rehabilitate contaminated sites AND provides one reason for their use OR <ul style="list-style-type: none">Describes one method AND provides reasons for its use	3
<ul style="list-style-type: none">Provides some relevant information	1–2

Question 26 (a)*Outcomes assessed: H9, H12, H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Gives the relationship	1

Question 26 (b)*Outcomes assessed: H9, H12, H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Outlines a strategyUses information from both graphsComments on the suitability of the strategy	3
<ul style="list-style-type: none">Outlines a strategyUses information from a graph to support the strategy or comments on the suitability of the strategy	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 27*Outcomes assessed: H1, H4, H6, H8, H9, H10, H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a breadth or depth of knowledge and understanding of relevant features of the Australian environment, resources and human habitation of the continent• Describes a variety of components that contribute to the extinction of organisms• Links causes and effects• Demonstrates a coherent and logical progression of thought and includes correct use of scientific principles and ideas	6–7
<ul style="list-style-type: none">• Displays a knowledge and understanding of relevant features of the Australian environment, resources and human habitation of the continent• Sketches in general some components that contribute to the extinction of organisms• Tenuously links/relates causes and effects• Uses relevant terminology and/or progression of thought	4–5
<ul style="list-style-type: none">• Recalls some relevant knowledge of the Australian environment, resources and human habitation that have contributed to the extinction of organisms• Uses some appropriate terminology and/or progression of thought	2–3
<ul style="list-style-type: none">• Recalls some information relevant to sustainability or the Australian environment or human arrival or the extinction of organisms	1

Section II

Question 28 (a) (i)

Outcomes assessed: H10

MARKING GUIDELINES

Criteria	Marks
• Identifies a plant	1

Question 28 (a) (ii)

Outcomes assessed: H10

MARKING GUIDELINES

Criteria	Marks
• Gives a reason	1

Question 28 (a) (iii)

Outcomes assessed: H10

MARKING GUIDELINES

Criteria	Marks
• Sketches in general terms how the plant was dispersed	1

Question 28 (a) (iv)

Outcomes assessed: H10

MARKING GUIDELINES

Criteria	Marks
• Gives a control strategy	1

Question 28 (b) (i)*Outcomes assessed: H141d***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Gives a potential risk	1

Question 28 (b) (ii)*Outcomes assessed: H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Makes a judgment based on sound criteria• Relates argument to given data	3
<ul style="list-style-type: none">• Makes a judgment based on weak criteria• Makes a poor attempt to relate argument to given data	2
<ul style="list-style-type: none">• Makes a judgment OR <ul style="list-style-type: none">• Identifies a trend in the data	1

Question 28 (c) (i)*Outcomes assessed: H9***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Sketches in general terms criteria used• Provides knowledge of relevant criteria	2
<ul style="list-style-type: none">• Provides some relevant information	1

Question 28 (c) (ii)*Outcomes assessed: H9***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Gives similarities or differences between the two methods	2
<ul style="list-style-type: none">• Provides some relevant information	1

Question 28 (d) (i)*Outcomes assessed: H11***MARKING GUIDELINES**

Criteria	Marks
• Identifies the correct variable	1

Question 28 (d) (ii)*Outcomes assessed: H13***MARKING GUIDELINES**

Criteria	Marks
• Draws a correctly labelled appropriate graph	3
• Draws an appropriate graph OR • Provides a graph with correct labels OR • Provides a poorly drawn and labeled graph	2
• Provides some relevant information	1

Question 28 (e)*Outcomes assessed: H14***MARKING GUIDELINES**

Criteria	Marks
• Gives the trend of the entire graph • Identifies numerical components of the trend • Gives a reason for the trend	3
• Addresses two of the criteria	2
• Provides some relevant information	1

Question 28 (f)*Outcomes assessed: H3, H4, H6, H9, H10, H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a depth or breadth of knowledge and understanding of biotic and abiotic components of the Australian environment• Describes introduced species in Australia• Correctly links impact on biotic and abiotic components to species introduction• Demonstrates a coherent and logical progression of thought and includes correct use of scientific principles and ideas	5–6
<ul style="list-style-type: none">• Displays a knowledge and understanding of the biotic and abiotic components of the Australian environment• Sketches in general terms the introduction of species to Australia• Tenuously links/relates changes in the biotic and abiotic components to species introduction• Uses appropriate terminology/language	3–4
<ul style="list-style-type: none">• Recalls some relevant knowledge of biotic and abiotic components or introduced species	2
<ul style="list-style-type: none">• Recalls some relevant information	1

Question 29 (a) (i)*Outcomes assessed: H6***MARKING GUIDELINES**

Criteria	Marks
• Identifies one locality	1

Question 29 (a) (ii)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Names the element	1

Question 29 (a) (iii)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Gives the property	1

Question 29 (a) (iv)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Names a product	1

Question 29 (b) (i)*Outcomes assessed: H6, H9, H12, H14***MARKING GUIDELINES**

Criteria	Marks
• Gives a valid economic effect	1

Question 29 (b) (ii)*Outcomes assessed: H5***MARKING GUIDELINES**

Criteria	Marks
• Identifies one other energy source • Relates its potential use to future world energy usage • Gives a point for or against its use	3
• Identifies one other energy source • Provides points for or against its use	2
• Provides some relevant information	1

Question 29 (c) (i)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Gives the meaning of catalytic cracking	1

Question 29 (c) (ii)*Outcomes assessed: H1, H7***MARKING GUIDELINES**

Criteria	Marks
• Sketches in general terms the processes of diagenesis, catagenesis and metagenesis in petroleum formation	3
• Gives some understanding of the maturation of petroleum	2
• Gives some relevant information	1

Question 29 (d) (i)*Outcomes assessed: H11***MARKING GUIDELINES**

Criteria	Marks
• Names the independent variable	1

Question 29 (d) (ii)*Outcomes assessed: H13***MARKING GUIDELINES**

Criteria	Marks
• Draws a correctly labelled appropriate graph	3
• Draws an appropriate graph OR • Provides a graph with correct labels OR • Provides a poorly drawn and labeled graph	2
• Provides some relevant information	1

Question 29 (e)*Outcomes assessed: H14***MARKING GUIDELINES**

Criteria	Marks
• Gives the trend of the entire graph • Identifies numerical components of the trend • Gives a reason for the trend	3
• Addresses two of the above criteria	2
• Provides some relevant information	1

Question 29 (f)*Outcomes assessed: H3, H4, H6, H9, H10, H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a depth or breadth of knowledge and understanding of the geology of coal deposits and petroleum accumulations• Describes exploration techniques• Correctly links geology to exploration techniques• Demonstrates a coherent and logical progression of thought and includes correct use of scientific principles and ideas	5–6
<ul style="list-style-type: none">• Displays a knowledge and understanding of the geology of coal deposits and petroleum accumulations• Sketches in general terms some exploration methods• Tenuously links/relates exploration techniques and geology• Uses appropriate terminology/language	3–4
<ul style="list-style-type: none">• Recalls some relevant knowledge about coal deposits, petroleum accumulations or exploration methods	2
<ul style="list-style-type: none">• Recalls some relevant information	1

Question 30 (a) (i)*Outcomes assessed: H6, H9***MARKING GUIDELINES**

Criteria	Marks
• Identifies a landmark decision	1

Question 30 (a) (ii)*Outcomes assessed: H6, H9***MARKING GUIDELINES**

Criteria	Marks
• Identifies one effect	1

Question 30 (a) (iii)*Outcomes assessed: H6***MARKING GUIDELINES**

Criteria	Marks
• Gives an example	1

Question 30 (a) (iv)*Outcomes assessed: H6***MARKING GUIDELINES**

Criteria	Marks
• Identifies a renewable resource	1

Question 30 (b) (i)*Outcomes assessed: H14***MARKING GUIDELINES**

Criteria	Marks
• Identifies the correct resource	1

Question 30 (b) (ii)*Outcomes assessed: H8***MARKING GUIDELINES**

Criteria	Marks
• Identifies a mineral province and resource(s) • Provide features and characteristics of a model for mineral genesis	3
• Identifies a mineral province and resource(s) • Outlines a model for mineral genesis	2
• Provides some relevant information	1

Question 30 (c) (i)*Outcomes assessed: H3***MARKING GUIDELINES**

Criteria	Marks
• Identifies a deposit • Sketches in general terms one exploration method	1

Question 30 (c) (ii)*Outcomes assessed: H6***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates an understanding of appropriate infrastructure provided• Relates infrastructure to the feasibility of mining• Makes a judgement as to impact of infrastructure on the feasibility of mining	3
<ul style="list-style-type: none">• Outlines appropriate infrastructure provided and attempts to relate infrastructure to the feasibility of mining <p>OR</p> <ul style="list-style-type: none">• Gives features and characteristics of infrastructure and of mining	2
<ul style="list-style-type: none">• Provides some relevant information	1

Question 30 (d) (i)*Outcomes assessed: H11***MARKING GUIDELINES**

Criteria	Marks
• Names the independent variable	1

Question 30 (d) (ii)*Outcomes assessed: H13***MARKING GUIDELINES**

Criteria	Marks
• Draws a correctly labelled appropriate graph	3
• Draws an appropriate graph OR • Provides a graph with correct labels OR • Provides a poorly drawn and labeled graph	2
• Provides some relevant information	1

Question 30 (e)*Outcomes assessed: H14***MARKING GUIDELINES**

Criteria	Marks
• Gives the trend of the entire graph • Identifies numerical components of the trend • Gives a reason for the trend	3
• Addresses two of the above criteria	2
• Provides some relevant information	1

Question 30 (f)*Outcomes assessed: H3, H4, H6, H9, H10, H14***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a depth or breadth of knowledge and understanding of the impact of mining on the Australian environment and of resource limitations• Makes valid judgements on the sustainability of mining• Demonstrates a coherent and logical progression of thought and includes correct use of scientific principles and ideas	5-6
<ul style="list-style-type: none">• Displays a knowledge and understanding of the impact of mining on the Australian environment and of resource limitations• Sketches in general terms some aspects of the sustainability of mining• Tenuously links/relates mining and sustainability• Uses appropriate terminology/language	3-4
<ul style="list-style-type: none">• Recalls some relevant knowledge about mining, sustainability	2
<ul style="list-style-type: none">• Recalls some relevant information	1

Question 31 (a) (i)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Identifies the value	1

Question 31 (a) (ii)*Outcomes assessed: H7***MARKING GUIDELINES**

Criteria	Marks
• Sketches in general terms one process	1

Question 31 (a) (iii)*Outcomes assessed: H8***MARKING GUIDELINES**

Criteria	Marks
• States one possible origin	1

Question 31 (a) (iv)*Outcomes assessed: H8***MARKING GUIDELINES**

Criteria	Marks
• Names one region	1

Question 31 (b)*Outcomes assessed: H9, H10***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Identifies one consequence of ocean sewage outlets in northern AustraliaLinks to the diagram	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 31 (c)*Outcomes assessed: H9***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Provides an understanding of society's changed use of an ocean resourceRelates change in use of resources to increased understanding	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 31 (d) (i)*Outcomes assessed: H3***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Gives features of how one named technology worksRelates this to information obtained	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 31 (d) (ii)*Outcomes assessed: H3***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Comments on data about the oceans that new technologies may provideMakes a judgement as to the potential benefit of additional information	2
<ul style="list-style-type: none">Provides some relevant information	1

Question 31 (e) (i)*Outcomes assessed: H11***MARKING GUIDELINES**

Criteria	Marks
• Names the independent variable	1

Question 31 (e) (ii)*Outcomes assessed: H13***MARKING GUIDELINES**

Criteria	Marks
• Draws a correctly labelled appropriate graph	3
• Draws an appropriate graph OR • Provides a graph with correct labels OR • Provides a poorly drawn and labelled graph	2
• Provides some relevant information	1

Question 31 (f)*Outcomes assessed: H14***MARKING GUIDELINES**

Criteria	Marks
• Gives the trend of the entire graph • Identifies numerical components of the trend • Gives a reason for the trend	3
• Addresses two of the above criteria	2
• Provides some relevant information	1

Question 31 (g)

Outcomes assessed: H3, H4, H6, H9, H10, H14

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a depth or breadth of knowledge and understanding of the variation of physical conditions, including light with depth, marine communities and sediments• Links physical conditions to communities and sediments• Demonstrates a coherent and logical progression of thought and includes correct use of scientific principles and ideas	5–6
<ul style="list-style-type: none">• Displays a knowledge and understanding of physical conditions of the ocean• Sketches in general terms marine communities and marine sediments• Tenuously links/relates physical conditions to communities and sediments	3–4
<ul style="list-style-type: none">• Recalls some relevant knowledge about physical factors, communities, sediments	2
<ul style="list-style-type: none">• Recalls some relevant information	1

Earth and Environmental Science

2009 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
Part A			
1	1	9.2.1.2.3	H7
2	1	9.2.5.3.1	H8
3	1	9.2.4.2.5, 14.1(b)	H14
4	1	9.1, 9.2.3.2.2	H7
5	1	9.2.4.2.8	H7
6	1	9.3.4.2.5	H7
7	1	9.3.3.2.5	H7
8	1	9.3.2.2.3, 9.3.5.2.1	H8
9	1	9.3.3.3.1, 9.3.3.2.3, 14.1(a)	H14
10	1	9.3.4.2.2	H2, H7
11	1	H14.1(d), H14.3(c)	H1, H5
12	1	9.4.6.2.3	H2
13	1	9.4.1.2.1	H7
14	1	9.4.6.3.3	H4
15	1	9.4.3.2.2, 13.1(f)(g)	H13, H14
Section I			
Part B			
16 (a)	1	9.2.2.2.1	H7
16 (b) (i)	1	9.2.1.2.3	H7
16 (b) (ii)	3	9.2.1.2.4	H8
17 (a)	1	9.2.4.2.1	H7
17 (b)	3	9.2.4.2.2, 9.2.4.3.2	H3
17 (c)	3	9.2.4.2.7	H4
18	4	9.2.3.2.1	H7, H8
19 (a)	3	9.2.2.2.1, 9.2.1.2.3, 9.2.1.2.1, 13.1(e)	H7, H13
19 (b)	2	9.2.4.2.5, 12.4(a), 12.4(e)	H2, H12
20 (a)	1	9.3.1.2.2	H7
20 (b)	3	9.3.1.2.2	H8
20 (c)	3	9.3.2.2.2	H7, H8
21 (a)	2	9.3.4.3.2	H7
21 (b)	4	9.3.4.2.3	H7
22 (a)	1	9.3.3.2.5	H7
22 (b)	2	9.3.3.2.4	H7
23	4	9.4.4.2.2, 9.4.4.3.2	H1, H4, H10
24 (a)	1	9.4.5.3.1	H10
24 (b) (i)	1	9.4.5.3.1	H10

Question	Marks	Content	Syllabus outcomes
24 (b) (ii)	2	9.4.5.3.1	H9
25	4	9.4.7.2.3	H3, H6, H9
26 (a)	1	9.4.2.2.1, 12.4(b), 14.1(a)	H9, H12, H14
26 (b)	3	9.4.3.2.2, 12.4b, 14.1(d)	H12, H14
27	7	9.4, 9.3.5, 14.3b	H1, H4, H6, H8, H9 H10, H14
Section II			
Question 28 — Introduced Species and the Australian Environment			
28 (a) (i)	1	9.5.1.3.3	H10
28 (a) (ii)	1	9.5.1.3.3	H10
28 (a) (iii)	1	9.5.4.2.1	H10
28 (a) (iv)	1	9.5.4.2.2	H10
28 (b) (i)	1	9.5.5.2.6, 14.1(d)	H10, H14
28 (b) (ii)	3	9.5.5.2.7, 14.1 (a)	H14
28 (c) (i)	2	9.5.5.2.3	H9
28 (c) (ii)	2	9.5.5.2.2	H9
28 (d) (i)	1	9.5.1.2.3, 11.2 (a)	H11
28 (d) (ii)	3	9.5.1.2.3, 13.1 (f)	H13
28 (d) (iii)	3	9.5.1.2.3, 9.5.2.2.1, 14.1 (a)	H14
28 (e)	6	9.5, 14.3 (b)	H4, H9, H10, H14
Section II			
Question 29 — Organic Geology – A non-renewable Resource			
29 (a) (i)	1	9.6.2.3.1	H6
29 (a) (ii)	1	9.6.1.2.6	H7
29 (a) (iii)	1	9.6.4.2.2	H7
29 (a) (iv)	1	9.6.5.2.1	H7
29 (b) (i)	1	9.6.5.3.3	H6, H9, H12, H14
29 (b) (ii)	3	9.6.6.2.1	H5
29 (c) (i)	1	9.6.4.2.2	H7
29 (c) (ii)	3	9.6.2.2.4	H1, H7
29 (d) (i)	1	9.6.1.3.2, 9.6.2.2.1, 11 2 (a)	H11
(d) (ii)	3	9.6.1.3.2, 13 .1(f)	H13
(d) (iii)	3	9.6.1.3.2, 9.6.2.2.1, 14 i (a), 14 i (g)	H14
29 (e)	6	9.6.3, 14.3 (b)	H3, H4, H6, H9, H10, H14
Section II			
Question 30 — Mining and the Australian Environment			
30 (a) (i)	1	9.7.2.2.1	H6, H9
30 (a) (ii)	1	9.7.2.3.1	H6, H9
30 (a) (iii)	1	9.7.1.2.1	H6
30 (a) (iv)	1	9.7.3.2.1	H6
30 (b) (i)	1	9.7.3	H14
30 (b) (ii)	3	9.7.1.2.2	H8
30 (c) (i)	1	9.7.4.2.1	H3

Question	Marks	Content	Syllabus outcomes
30 (c) (ii)	3	9.7.4.2.5	H6
30 (d) (i)	1	9.7.3.2.6, 11.1 (a)	H11
30 (d) (ii)	3	9.7.3.2.6, 13 1 (f)	H13
30 (d) (iii)	3	9.7.3.2.6, 14 1 (a), 14 1 (g)	H14
30 (e)	6	9.7.3, 9.7.4, 9.7.5, 14.3 (b)	H3, H4, H6, H9, H10, H14
Section II			
Question 31 — Oceanography			
31 (a) (i)	1	9.8.1.2.1	H7
31 (a) (ii)	1	9.8.3.2.3	H7
31 (a) (iii)	1	9.8.1.2.3	H8
31 (a) (iv)	1	9.8.2.2.1	H8
31 (b) (i)	2	9.8.4.2.4	H9, H10
31 (c)	2	9.8.5.2.5	H9
31 (d) (i)	2	9.8.8.2.1	H3
31 (d) (ii)	2	9.8.8.3.1	H3
31 (e) (i)	1	9.8.1.2.1, 9.8.6.3.2, 11 2 (a)	H11
31 (e) (ii)	3	9.8.1.2.1	H13
31 (e) (iii)	3	9.8.1.2.1, 14 1 (a), 14 1 (g)	H14
31 (f)	6	9.8.5, 9.8.6, 9.8.7, 14.3 (b)	H3, H4, H6, H9, H10, H14