



BOARD OF STUDIES
NEW SOUTH WALES

2010 HSC Electrotechnology Marking Guidelines

Section I

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

**Section II****Question 16 (a)**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a comprehensive understanding of sustainability including renewability AND <ul style="list-style-type: none">• Supply into the future	2
<ul style="list-style-type: none">• Demonstrates some understanding of renewability OR <ul style="list-style-type: none">• Supply into the future	1

Question 16 (b)

Criteria	Marks
<ul style="list-style-type: none">• Correctly identifies THREE sources	3
<ul style="list-style-type: none">• Correctly identifies TWO sources	2
<ul style="list-style-type: none">• Correctly identifies ONE source	1

**Question 16 (c)**

Criteria	Marks
• Complete explanation of method	2
• Partial explanation of method	1

Question 17 (a) (i)

Criteria	Marks
• Series	1

Question 17 (a) (ii)

Criteria	Marks
• Current stays same AND • Voltage increases	2
• Current stays same OR voltage increases	1

Question 17 (a) (iii)

Criteria	Marks
• OV/ Zero volts	1

Question 17 (b) (i)

Criteria	Marks
• Parallel	1

Question 17 (b) (ii)

Criteria	Marks
• Current increases and voltage stays the same	2
• Current increases OR voltage stays the same	1

Question 17 (b) (iii)

Criteria	Marks
• 2V/ Two Volts	1

Question 18 (a)

Criteria	Marks
• Calculates correct answer	2
• Uses correct formula	1

Question 18 (b)

Criteria	Marks
• TWO correct equations and TWO correct answers OR • Both parts of a summative statement correct	4
• TWO correct equations and ONE correct answer OR • ONE correct equation and TWO correct answers	3
• ONE correct answer and ONE correct equation OR • TWO correct equations OR • TWO correct answers OR • ONE part of summative statement correct	2
• ONE correct equation OR • ONE correct answer	1

Question 19 (a)

Criteria	Marks
• Calculates ALL resistance values correctly or has correct answer	4
• Calculates THREE resistance values correctly	3
• Calculates TWO resistance values correctly	2
• Calculates ONE resistance value correctly	1

**Question 19 (b)**

Criteria	Marks
• Calculates correct resistance value AND correct current	2
• Calculates correct resistance value OR correct current	1

Question 20 (a)

Criteria	Marks
• Lamp 1 brightly lit • Lamp 2 brightly lit • No current flow across R_1	3
• Lamp 1 brightly lit • Lamp 2 brightly lit OR • Lamp 1 brightly lit • No current flow across R_1 OR • Lamp 2 brightly lit • No current flow across R_1	2
• Lamp 1 brightly lit OR • Lamp 2 brightly lit OR • No current flow across R_1	1

**Question 20 (b)**

Criteria	Marks
<ul style="list-style-type: none">Lamp 1 brightly litCurrent flows across R_1Lamp 2 dimly lit	3
<ul style="list-style-type: none">Lamp 1 brightly litLamp 2 dimly lit OR <ul style="list-style-type: none">Lamp 1 brightly litCurrent across R_1 OR <ul style="list-style-type: none">Current across R_1Lamp 2 dimly lit	2
<ul style="list-style-type: none">Lamp 1 brightly lit OR <ul style="list-style-type: none">Lamp 2 dimly lit OR <ul style="list-style-type: none">Current across R_1	1

Question 20 (c) (i)

Criteria	Marks
<ul style="list-style-type: none">Current = 0A	1

Question 20 (c) (ii)

Criteria	Marks
<ul style="list-style-type: none">Voltage = 0V	1

Section III

Question 21

Criteria	Marks
<ul style="list-style-type: none">• Provides a comprehensive explanation of safe working practices that should be implemented in the given electrotechnology situation• Communicates clearly and logically, using standard industry terminology• Communicates ideas and information effectively in a well-reasoned and cohesive response• Demonstrates an in-depth understanding of electrotechnology functions in reference to the scenario used in the question	13–15
<ul style="list-style-type: none">• Provides a detailed explanation of safe working practices that should be implemented in the given electrotechnology situation• Communicates in the manner acceptable using standard industry terminology• Communicates ideas and information consistently in a reasoned and cohesive response• Demonstrates an understanding of electrotechnology functions in reference to the scenario used in the question	10–12
<ul style="list-style-type: none">• Provides adequate explanation of safe working practices that should be implemented in the given electrotechnology situation• Communicates using some industry terminology• Communicates ideas and information adequately• Demonstrates a basic understanding of electrotechnology functions in reference to the scenario used in the question	7–9
<ul style="list-style-type: none">• Provides a basic explanation of safe working practices that should be implemented in the given electrotechnology situation• Communicates using limited industry terminology• Communicates ideas and information in a basic manner• Demonstrates a basic understanding of electrotechnology functions in reference to the scenario given	4–6
<ul style="list-style-type: none">• Provides a limited description of some safe working practices that should be implemented in the given electrotechnology situation• Communicates using limited industry terminology• Communicates ideas and information in a limited manner• Demonstrates limited understanding of electrotechnology functions in reference to the scenario used in the question	1–3

Section IV

Question 22 (a)

Criteria	Marks
<ul style="list-style-type: none">• Provides a comprehensive risk assessment that should be undertaken in the given electrotechnology situation• Communicates ideas and information effectively in a well-reasoned and cohesive response• Demonstrates an in-depth understanding of electrotechnology functions in reference to the scenario used in the question	5
<ul style="list-style-type: none">• Provides a detailed risk assessment that should be undertaken in the given electrotechnology situation• Communicates ideas and information consistently in a reasoned and cohesive response• Demonstrates an understanding of electrotechnology functions in reference to the scenario used in the question	4
<ul style="list-style-type: none">• Provides adequate risk assessment that should be undertaken in the given electrotechnology situation• Communicates ideas and information adequately• Demonstrates a basic understanding of electrotechnology functions in reference to the scenario used in the question	3
<ul style="list-style-type: none">• Provides a basic risk assessment that should be undertaken in the given electrotechnology situation• Communicates ideas and information in a basic manner• Demonstrates a basic understanding of electrotechnology functions in reference to the scenario given	2
<ul style="list-style-type: none">• Provides a limited assessment of risks that should be undertaken in the given electrotechnology situation• Communicates ideas and information in a limited manner• Demonstrates limited understanding of electrotechnology functions in reference to the scenario used in the question	1

Question 22 (b)

Criteria	Marks
<ul style="list-style-type: none">• Provides a comprehensive list of tools and equipment required, and processes• Consistently uses precise terminology to a professional level• Communicates ideas and information highly effectively	9–10
<ul style="list-style-type: none">• Provides a detailed list of tools and equipment required, and processes• Uses precise terminology to a professional level• Effectively communicates ideas and information	7–8
<ul style="list-style-type: none">• Provides an adequate list of tools and equipment required, and processes• Uses terminology to an acceptable level• Communicates ideas and information to an adequate level	5–6
<ul style="list-style-type: none">• Provides a basic list of tools and equipment required, and processes• Consistently uses basic terminology• Communicates ideas and information at a basic level	3–4
<ul style="list-style-type: none">• Provides a limited list of tools and equipment required, and processes• Makes limited use of professional terminology• Communicates ideas and information at a basic level	1–2

Electrotechnology

2010 HSC Examination Mapping Grid

Question	Marks	Unit of competency / Element of competency
Section I		
1	1	UEENEEE005B Fix and secure equipment
2	1	UEENEEE005B Fix and secure equipment
3	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
4	1	UEENEEE005B Fix and secure equipment
5	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
6	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
7	1	UEENEEE001B Apply OHS practices in the workplace
8	1	UEENEEE002B Dismantle, assemble and fabricate electrotechnology components
9	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
10	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
11	1	UEENEEE004B Solve problems in multipath DC circuits
12	1	UEENEEE004B Solve problems in multipath DC circuits
13	1	UEENEEE004B Solve problems in multipath DC circuits
14	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
15	1	UEENEEE004B Solve problems in multipath DC circuits
Section II		
16(a)	2	UEENEEE048B Carry out routine work activities in an electrotechnology environment
16(b)	3	UEENEEE048B Carry out routine work activities in an electrotechnology environment
16(c)	2	UEENEEE048B Carry out routine work activities in an electrotechnology environment
17(a)(i)	1	UEENEEE004B Solve problems in multipath DC circuits
17(a)(ii)	2	UEENEEE004B Solve problems in multipath DC circuits
17(a)(iii)	1	UEENEEE004B Solve problems in multipath DC circuits
17(b)(i)	1	UEENEEE004B Solve problems in multipath DC circuits
17(b)(ii)	2	UEENEEE004B Solve problems in multipath DC circuits
17(b)(iii)	1	UEENEEE004B Solve problems in multipath DC circuits
18(a)	2	UEENEEE003B Solve problems in extra-low voltage single path circuits
18(b)	4	UEENEEE003B Solve problems in extra-low voltage single path circuits
19(a)	4	UEENEEE004B Solve problems in multipath DC circuits
19(b)	2	UEENEEE004B Solve problems in multipath DC circuits
20(a)	3	UEENEEE003B Solve problems in extra-low voltage single path circuits
20(b)	3	UEENEEE003B Solve problems in extra-low voltage single path circuits
20(c)(i)	1	UEENEEE003B Solve problems in extra-low voltage single path circuits
20(c)(ii)	1	UEENEEE003B Solve problems in extra-low voltage single path circuits

Section III		
21	15	UEENEEE005B Fix and secure equipment UEENEEEC010B Deliver a service to customers UEENEEE048B Carry out routine work activities in an electrotechnology environment Employability skills - communication
Section IV		
22(a)	5	UEENEEE001B Apply OHS practices in the workplace UEENEEE002B Dismantle, assemble and fabricate electrotechnology components UEENEEE048B Carry out routine work activities in an electrotechnology environment
22(b)	10	UEENEEE001B Apply OHS practices in the workplace UEENEEE002B Dismantle, assemble and fabricate electrotechnology components UEENEEE048B Carry out routine work activities in an electrotechnology environment