BOSTES | BOARD OF STUDIES TEACHING & EDUCATIONAL STANDARDS NSW

2015 HSC Construction Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 16 (a)

Criteria	Marks
• Outline how to use a spirit level on a vertical doorjamb to find plumb	2
• Identifies some relevant information	1

Sample answer:

Ensure that the level is flat against the doorjamb surface.
The spirit level's bubble centres between the two lines.

Question 16 (b)

Criteria	Marks
• Demonstrates an accurate understanding in testing the entire opening for squareness	2
• Provides some relevant information	1

Sample answer:

Measure the diagonals of the opening and check they are equal.

Question 17 (a)

Criteria	Marks
• Clearly describes implications of building construction delays	3
• Describes limited implications of building construction delays	2
• Describes a relevant point	1

Sample answer:

Wet weather may force builders to stop work. This will delay the building schedule and add costs to the project. Injuries or accidents to workers could require a safety audit and slow the project with fewer workers to complete tasks. Late arrival of materials may change the sequence of trades, delaying the project and adding further costs.

Question 17 (b)

Criteria	Marks
• Clearly describes a range of consequences of poor maintenance of construction tools and equipment	4
• Describes some consequences of poor maintenance of construction tools and equipment	3
• Provides limited consequences of poor maintenance of construction tools and equipment	2
• Makes a relevant point	1

Sample answer:

Poor maintenance can result in reduced tool life cycle and loss of productivity due to equipment failure. The quality of work is reduced due to poorly functioning tools and equipment. Accidents or injury may occur when using blunt cutting blades, such as kick back on a circular saw.

Question 18 (a)

Criteria	Marks
• Outlines two or more adjustments to the cordless drill	2
• Outlines one adjustment to the cordless drill	1

Sample answer:

The speed of the drill, forward and reverse, hammer drill and the torque setting adjustment.

Question 18 (b)

Criteria	Marks
• Sketches in general terms, considerations when drilling concrete	2
• Provides a relevant point	1

Sample answer:

When drilling into concrete, use a masonry drill bit on hammer drill, adjust speed to suit drill bit size, centre punch drill centre on concrete, wear safety glasses (PPE) and ear muffs.

Question 19 (a)

Criteria	Marks
• Correctly identifies a symbol or feature and outlines a relevant purpose	2
• Identifies a symbol or feature without relevant reference to a purpose	1

Sample answer:

The datum point provides a known reference level to set out the proposed house.

Answers could include:

- Identifies a North point to enable the correct orientation of the site and works
- Building setback to enable the correct location of the house
- Trees/vegetation symbols, to indicate their location and if they are to be removed
- Street name and location, to provide correct site identification and access to the site.

Question 19 (b)

Criteria	Marks
• Correctly calculates the total amount of labour required to setup the temporary fencing	2
• Provides some correct calculations	1

Sample answer:

Leading hand cost: $\$65 \times 16 = \$1040$
Apprentice cost: $\$24 \times 12 = \$288$
Total cost of labour: $\$1040 + \$288 = \$1328$

Question 19 (c)

Criteria	Marks
• Outlines features of how a builder would use the site plan for site setup	3
• Indicates some features for site setup from the site plan	2
• Makes a relevant point	1

Sample answer:

A builder would use the site plan to locate and confirm the location of the proposed house. The builder would use the plan to locate stormwater, electrical and other services on the site. They would also plan the location of material storage during construction.

Question 20

Criteria	Marks
• Describes strategies that effectively deal with harassment and/or discrimination	6
• Describes some strategies that deal with harassment and/or discrimination	4–5
• Provides limited details about harassment and/or discrimination	2–3
• Provides some relevant information	1

Sample answer:

Strategies to deal with harassment and discrimination in the construction industry would be to provide education and training to workers regarding the legal responsibilities of employers and employees in the way they treat each other. Such as, having a training meeting on the WHS legislation about harassment and discrimination. Provide workplace posters that promote quality relationships between workers. Employers provide equal employment opportunities seminar during site inductions and white card training. Provide access to resources for employees to discuss harassment and discrimination claims, such as WHS site-officer, union support and conduct mediation resolution.

Question 21 (a)

Criteria	Marks
• Accurately calculates the number of timber lengths needed	2
• Demonstrates some understanding of calculations	1

Sample answer:

Circumference of garden bed:

$= \pi d$

$= \pi \times 3$

$= 9.42$

Lengths of timber:

$= 9.42 \div 1.8$

$= 5.23$

$\therefore 6$ lengths

Question 21 (b)

Criteria	Marks
• Accurately calculates the volume of sand	2
• Demonstrates some understanding of calculations	1

Sample answer:

Area of paving:

$= (15 \times 8) - (\pi 1.5^2)$

$= 120 - 7.07$

$= 112.93m^2$

Volume of sand:

$= 112.93 \times 0.05m$

$= 5.65m^3$

Question 21 (c)

Criteria	Marks
• Accurately calculates the number of pavers required	3
• Calculates the number of pavers with some errors	2
• Demonstrates some understanding of calculations	1

Sample answer:

Area of paver:

$= 0.4 \times .04$

$= 0.16m^2$

Area of paving:

$= (15 \times 8) - (\pi 1.5^2)$

$= 120 - 7.07$

$= 112.93m^2$

Pavers required:

$=$ Area of paving $\div$ Area of paver

$= 112.93 \div 0.16$

$= 705.81 \therefore$ 706 pavers

Section III

Question 22

Criteria	Marks
• Shows a sound knowledge and understanding of quality work standards and ethical work practices • Provides examples of ethical work practices used to maintain quality work standards • Uses precise industry terminology in a well-reasoned response	13–15
• Shows a clear knowledge and understanding of quality work standards and ethical work practices • Provides an example of ethical work practice used to maintain quality standards • Uses appropriate industry terminology	10–12
• Shows a general understanding of quality work standards and ethical work practices • Provides a general knowledge of ethical work practices to maintain quality work standards • Uses appropriate industry terminology	7–9
• Shows a basic understanding of quality work standards and/or ethical work practices • Uses generic industry terminology	4–6
• Provides an awareness of quality standards and/or ethical work practices • Uses limited industry terminology	1–3

Answers could include:

- Quality work practices
  - Building plans and specifications as per Australian Standards
  - Building plans approved by the local council
  - Stage inspections by the local council
  - Amendments to plan approved by the local council
  - Obtain certificate of completion by the subcontractors, ie electrical, plumbing, waterproofing
  - Engineer's certificate for structures
  - Use of quality tools and equipment
  - Quality materials
  - Completion of specialised work by accredited tradesman, ie licenced electrical or plumber
  - Response to inspection reports
  - Pride in one's work
  - Quality control and assurance

- Ethical work
  - Approved plans and specifications followed throughout the construction process
  - Safe work practices
  - Materials used as per specifications
  - Honesty
  - Respect for self and others in the workplace
  - Equal Employment Opportunities (EEO)
  - Waste management ie hazardous substances
  - Correct disposal of waste
  - Water runoff control measures.

Section IV

Question 23 (a)

Criteria	Marks
• Identifies a hazard and clearly outlines the risk to workers	2
• Identifies a hazard and/or risk to workers	1

Answers could include:

Extension lead not safe – tripping risk.
Timber not securely held – risk of kick back and injury to the workers.
Open trench.

Question 23 (b)

Criteria	Marks
• Demonstrates clear knowledge of worksite information communicated to workers and visitors	5
• Shows a good understanding of worksite information communicated to workers and visitors	3–4
• Shows a limited understanding of the worksite information communication	1–2

Answers could include:

Safety signs clearly displayed.
Site induction to workers and visitors.
Toolbox meetings.
Written notices.
Feedback from the workers.
Emails and text messages.
Noticeboards.

Question 23 (c)

Criteria	Marks
• Demonstrates an in-depth knowledge of risk assessment and hazard management for this site • Uses precise industry terminology in a well-structured response	8
• Demonstrates a sound knowledge of risk assessment and hazard management for this site • Uses appropriate industry terminology	6–7
• Demonstrates relevant knowledge of risk assessment and/or hazard management • Uses some industry terminology	4–5
• Provides a limited understanding of risk assessment and/or hazard management • Uses limited industry terminology	2–3
• Provides a relevant point	1

Answers could include:

- Identify hazards
- Assess risks
- Impact of the hazard on the workers
- Safe work method statement
- Assess hazard danger level
- Identify the most dangerous hazard
- Control hazard
  - Hierarchy of control:
    Elimination
    Substitution
    Engineering control
    Administration control
    Personal Protective Equipment
- Information and training for workers.

2015 HSC Construction
Mapping Grid

Section I

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
1	1	CPCCCM2005B Use construction Tools and Equipment page 70								X
2	1	CPCCM1015A Carry out Measurement and Calculations page 53			X				X	
3	1	CPCCCOHS1001A Work Safely in the Construction Industry pages 79 and 80					X			
4	1	CPCCM1013A Plan and Organise Work page 33	X							
5	1	CPCCOHS1001A Work Safely in the Construction Industry page 82					X	X		
6	1	CPCCM1015 Carry out Measurement and Calculations pages 48 and 49			X		X			
7	1	CPCCCM2001A Read and Interpret Plans and Specifications pages 57, 59 and 60	X							
8	1	CPCCCM2001A Read and Interpret Plans and Specifications page 56					X			
9	1	CPCCOHS2001A Apply WHS Requirement, Policies and Procedures in the Construction Industry page 102 CPCCCM2005B Use construction Tools and Equipment page 67								X
10	1	CPCCCM2005A Use construction Tools and Equipment page 69								X
11	1	CPCCCM2001A Read and Interpret Plans and Specifications pages 56–58	X							
12	1	CPCCCOHS1001A Work Safely in the Construction Industry pages 79 and 80–81	X							
13	1	CPCCM1015 Carry out Measurement and Calculations pages 48 and 49	X							
14	1	CPCCM1013A Plan and Organise Work page 33					X			
15	1	CPCCM1015 Carry out Measurement and Calculations pages 48 and 49	X							

Section II

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
16 (a)	2	CPCCCM2005B Use construction Tools and Equipment page 69								X
16 (b)	2	CPCCCM2005B Use construction Tools and Equipment page 69			X					
17 (a)	3	CPCCCM1012A Work effectively and sustainably in the Construction Industry page 18	X				X			
17 (b)	4	CPCCOHS2001A Apply WHS Requirement, Policies and Procedures in the Construction Industry page 102					X			
18 (a)	2	CPCCCM2005B Use construction Tools and Equipment page 68								X
18 (b)	2	CPCCCM2005B Use construction Tools and Equipment page 65					X			X
19 (a)	2	CPCCCM2001A Read and Interpret Plans and Specifications page 60	X							
19 (b)	2	CPCCM1015A Carry out Measurement and Calculations page 52	X							
19 (c)	3	CPCCCM2001A Read and Interpret Plans and Specifications page 57					X			
20	6	CPCCOHS2001A Apply WHS Requirement, Policies and Procedures in the Construction Industry page 94 CPCCCM1012A Work effectively and sustainably in the Construction Industry pages 14–15		X		X				
21 (a)	2	CPCCM1015A Carry out Measurement and Calculations pages 52	X							
21 (b)	2	CPCCM1015A Carry out Measurement and Calculations pages 49 and 52	X							
21 (c)	3	CPCCM1015A Carry out Measurement and Calculations pages 49 and 52	X							

Section III

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
22	15	CPCCM1013A Plan and Organise Work pages 30– 33 CPCCM1014A Conduct Workplace Communication pages 35, 37, 41 and 42 CPCCCM1012A Work effectively and sustainably in the Construction Industry pages 13 and 16	X	X			X	X		X

Section IV

Question	Marks	Unit of competency / Element of competency	Employability skills (Please put an X where appropriate)							
			Communication	Teamwork	Problem-solving	Initiative and enterprise	Planning and organising	Self-management	Learning	Technology
23 (a)	2	CPCCCM1012A Work effectively and sustainably in the Construction Industry page 24 CPCCOHS2001A Apply WHS Requirement, Policies and Procedures in the Construction Industry page 103 CPCCM1014A Conduct Workplace Communication pages 36 and 40	X							
23 (b)	5	CPCCOHS2001A Apply WHS Requirement, Policies and Procedures in the Construction Industry page 103 CPCCM1013A Plan and Organise Work page 34 CPCCM1014A Conduct Workplace Communication pages 40 and 41	X		X				X	
23 (c)	8	CPCCCOHS1001A Work Safely in the Construction Industry page 84 CPCCOHS2001A Apply WHS Requirement, Policies and Procedures in the Construction Industry page 99 CPCCCM2005B Use construction Tools and Equipment page 70 CPCCM1013A Plan and Organise Work page 31-32	X	X		X	X		X	X