

2017 HSC Construction Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 16 (a)

Criteria	Marks
• Names colours for each sign	2
• Names colours for one sign	1

Sample answer:

<i>Signs</i>	<i>Colours</i>
Regulatory mandatory	Blue
Regulatory prohibition	Red and black

Answers could include:

Annotated sketches

- White symbol on a blue background – regulatory mandatory
- Red circle with a diagonal line; black symbol on a white background – regulatory prohibition

Question 16 (b)

Criteria	Marks
• Outlines more than one factor of maintenance	2
• Outlines one factor or identifies two factors of maintenance	1

Sample answer:

Check tyre for correct pressure and ensure the tray is secure and without defect.

Answers could include:

- Wheel bearings
- Corrosion to tray or frame
- Tyre type
- Torn or worn handles
- WHS issues and planning.

Question 16 (c)

Criteria	Marks
• Provides features that should be considered when purchasing a wheelbarrow	2
• Provides a feature that should be considered when purchasing a wheelbarrow	1

Sample answer:

The size and tray type should match the intended use of the wheelbarrow eg carrying soil, concrete or bricks. The size and profile of the tyre should match the load and site conditions where it will be used.

Answers could include:

- Frame type (steel or timber)
- Replacement parts.

Question 17

Criteria	Marks
• Provides an extensive explanation of the safe unloading of the sheet material on to the site	4–5
• Describes aspects of manual handling for sheet material	2–3
• Provides a relevant point about manual handling	1

Sample answer:

The plywood should be unloaded as a coordinated team lift. The team should discuss where the load is to be stored and a clear path established. This is so that any obstructions can be cleared to prevent trips and hazards. A risk assessment should be made regarding pedestrian and vehicular traffic when unloading from the truck. This is to ensure pedestrians aren't hit by materials or workers hit by vehicles. The team needs to communicate with each other during the lifting and moving of material so that any unforeseen hazards are made aware to the whole team. This will ensure a safe lifting operation.

Answers could include:

- Team members on one side of the sheet when carrying
- Sheet should be carried in a vertical position
- Body position eg bend knees and straight back
- Wear gloves
- Barricades for footpath
- Monitor traffic.

Question 18 (a)

Criteria	Marks
• Accurately calculates the amount of paint needed showing relevant working	2
• Demonstrates some understanding of calculations	1

Sample answer:

Area of a triangle:

$$\frac{1}{2} \times b \times h$$

$$= \frac{1}{2} \times 8.4 \times 4.2$$

$$= 17.64 \text{ m}^2$$

If 1 L covers 5 m², then

$$= \frac{17.64}{5}$$

$$= 3.528 \text{ L}$$

Therefore, for two coats:

$$= 2 \times 3.528$$

$$= 7.056 \text{ L}$$

Question 18 (b)

Criteria	Marks
• Correctly calculates the linear metres required showing relevant working	3
• Calculates linear metres with some errors	2
• Demonstrates some understanding of calculations	1

Sample answer:

Number of boards across the gable end

$$= \frac{8400}{140}$$

= 60 cypress pine boards

However, as the gable is a triangle, only half the boards are required.

$$= \frac{60}{2}$$

= 30 boards

Each board needs to be 4200 mm

$$= 30 \times 4.2$$

= 126 linear metres

Answers could include:

Area of the gable end.

Area of a triangle:

$$\frac{1}{2} \times b \times h$$

$$= \frac{1}{2} \times 8.4 \times 4.2$$

$$= 17.64 \text{ m}^2$$

Area of one board is 4.2 m × 140 mm wide

$$= 0.588 \text{ m}^2$$

Area of the gable divided by the area of one board

$$= \frac{17.64}{0.588}$$

= 30 boards

Each board needs to be 4.2 m

$$= 30 \times 4.2$$

= 126 linear metres

Question 19 (a)

Criteria	Marks
• Identifies drawing type and its scale	2
• Identifies drawing type OR its scale	1

Sample answer:

The sketch is a site plan and it would be drawn at a scale of 1:200.

Answers could include:

Scale could also be 1:250 or 1:500.

Question 19 (b)

Criteria	Marks
• Names all features	2
• Names more than one feature	1

Sample answer:

Feature	Description
	Vegetation
	North point
	Datum point
	Contour line

Question 19 (c)

Criteria	Marks
• Calculates correct length of southern boundary	2
• Relevant calculations with some errors	1

Sample answer:

$$\text{Area} = 540 \text{ m}^2$$

$$\text{Area} = \text{Length} \times \text{Width}$$

$$\text{Length} = \frac{\text{Area}}{\text{Width}}$$

$$= \frac{540}{15}$$

$$= 36 \text{ m}$$

Question 19 (d)

Criteria	Marks
• Outlines the information that should be included on a title block	2
• Identifies a feature of a title block	1

Sample answer:

The title block should include the drawing scale, amendment number and address of the site.

Answers could include:

- Title of contractor
- Drawn by whom
- Date
- Client.

Question 20 (a)

Criteria	Marks
• Identifies responsibilities of the student	2
• Identifies a responsibility	1

Sample answer:

The student needs to have appropriate PPE and follow all reasonable instructions given for the type of work being carried out. They also must have their White Card at all times.

Answers could include:

- Location of work
- Start time
- Ensure site induction.

Question 20 (b)

Criteria	Marks
• Explains the responsibilities of the workplace supervisor	3
• Describes the responsibilities of the workplace supervisor	2
• Outlines a responsibility	1

Sample answer:

The workplace supervisor is responsible for inducting the student onto the site so that they are aware of the emergency procedures and on-site facilities. They are also responsible for training and instruction for tasks the student will undertake that day to ensure their learning, safety and wellbeing.

Answers could include:

- First aid and amenities
- Risk assessments
- Work schedule
- Maintenance schedule.

Question 21

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates clear knowledge of emergency procedures to be followed immediately and as a result of the incident • Demonstrates correct procedural sequence • Uses correct industry terminology 	5–6
<ul style="list-style-type: none"> • Demonstrates good understanding of procedures to be followed immediately and as a result of the incident • Demonstrates a sequence • Uses some industry terminology 	3–4
<ul style="list-style-type: none"> • Shows limited understanding of procedures related to incidents • Uses limited industry terminology 	1–2

Sample answer:

The procedures that need to be followed include, providing immediate first aid as required and, if needed, calling 000 asking for an ambulance. Give details such as extent of injury and location of incident. Contact the worker's family.

The follow-up would include an investigation and completing an incident report explaining what has occurred.

Depending on the extent of injuries sustained, SafeWork Australia and the relevant union may need to be contacted.

Procedures involving working at heights would then need to be reviewed and monitored. This would then become part of the site's work practice.

Answers could include:

- Emergency procedures
- Review risk management process
- Workers Compensation
- Return to work plan for injured worker.

Role of:

- unions
- professional associations.

Section III

Question 22

Criteria	Marks
<ul style="list-style-type: none"> Shows an in-depth knowledge and understanding of environmentally sustainable work practices Provides examples of minimisation strategies covering materials, equipment and legislation and regulations Uses precise industry terminology in a logical and cohesive response Uses workplace examples 	13–15
<ul style="list-style-type: none"> Shows a sound knowledge and understanding of environmentally sustainable work practices Provides an example of minimisation strategies covering materials and/or equipment and/or legislation and regulations Uses appropriate industry terminology and a workplace example 	10–12
<ul style="list-style-type: none"> Shows a general understanding of environmentally sustainable work practices Provides a general knowledge of minimisation strategies covering materials and/or equipment and/or legislation and regulations Uses appropriate industry terminology or provides examples 	7–9
<ul style="list-style-type: none"> Shows a basic understanding of environmentally sustainable work practices Uses generic industry terminology 	4–6
<ul style="list-style-type: none"> Provides an awareness of environmentally sustainable work practices Provides some relevant information 	1–3

Answers could include:

Environmentally sustainable work practices

- Materials
 - Storage according to SDS
 - Disposal according to SDS
 - Recycling
 - Re-use
 - Waste is managed and treated in accordance with regulations
 - Local or imported resources
 - Materials from sustainable sources
- Equipment
 - Regular maintenance of tools and machines
 - Efficiency of tools and machines to reduce consumables and energy consumption to
 - Water resource management
 - Pollution
 - Workers' competence in operating and maintaining equipment

- Legislation and regulations
 - Awareness of legislation
 - Role of the EPA
 - Maintain environmental records through incident, accident and inspection reports
 - Adherence to legislation and regulations
 - Penalties that could be incurred by construction companies.

Section IV

Question 23 (a)

Criteria	Marks
• Demonstrates clear understanding of ordering and delivery of TWO different materials	5–6
• Demonstrates a good understanding of ordering and delivery of TWO different materials	3–4
• Shows a limited understanding of ordering and/or delivery of material(s)	1–2

Sample answer:

To organise the concrete on site, you would have to phone a concrete company to organise the delivery to the site for a specific time and day. The company would want to know the quantity needed, the address of the site and if it was coming off the chute or being pumped. Delivery would usually be confirmed through a phone call on the morning of the pour. This prevents any miscommunication or notifies any change to the order. The site would need to be prepared for the access of the concrete trucks. Payment would be made either before delivery or on the day of the delivery.

To organise the delivery of timber to the site for the frames, quotes would need to be obtained from a range of suppliers. This could be done through a range of communication methods such as phone or email. Email would provide written evidence of the quotation and allow for plans to be easily transferred to the supplier to quote on. This cannot be easily done on the phone. When the delivery of timber arrives, materials should be checked off against the delivery docket and the original order. This ensures that the correct order has been filled.

Answers could include:

- Storage locations for materials
- Different communication techniques used for ordering depending on urgency, detail required and company procedures
 - Phone
 - Email/website
 - Fax
 - In person
- Different delivery methods used depending on the size and quantities ordered
 - Pallets
 - Loose
 - Mechanical
 - Pick-up.

Question 23 (b)

Criteria	Marks
<ul style="list-style-type: none"> • Shows a comprehensive knowledge of four residential trades • Explains the sequence of trades during construction • Clearly explains the relationship between trades • Uses precise industry terminology 	9
<ul style="list-style-type: none"> • Shows a sound knowledge of residential trades • Provides a reasonable sequence of trades during construction • Uses appropriate industry terminology 	7–8
<ul style="list-style-type: none"> • Shows a general knowledge of residential trades • Provides some sequencing of trades during construction • Uses appropriate industry terminology 	5–6
<ul style="list-style-type: none"> • Shows a basic knowledge of some trades • Uses generic industry terminology 	3–4
<ul style="list-style-type: none"> • Provides relevant points 	1–2

Answers could include:

Trades that would be used in the construction of this house could include:

- Surveyor
- Excavation
- Concreting
- Plumbing
- Bricklayer
- Carpenter
- Electrician
- Roofer.

The scope of work for each trade includes the tools, equipment, skills required and the materials involved.

The sequence of trades demonstrates the relationship between each trade during the construction process.

2017 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	CPCCCM1015A Carry out measurements and calculations – Element 3 – pages 52–53			X					
2	1	CPCCCM2005B Use construction tools and equipment – Element 2 – page 70								X
3	1	CPCCCM1015A Carry out measurements and calculations – Element 1 – page 51			X					
4	1	CPCCCM1015A Carry out measurements and calculations – Element 3 – page 52			X					
5	1	CPCCCM1015A Carry out measurements and calculations – Element 4 – page 53			X					
6	1	CPCCCOHS2001A Apply WHS requirements, policies and procedures in the construction industry – Element 5 – page 105		X			X			
7	1	CPCCCM2005B Use construction tools and equipment – Element 1 – page 66								X
8	1	CPCCCM1012A Work effectively and sustainably in the construction industry – Element 1 – page 15	X				X			
9	1	CPCCCM2005B Use construction tools and equipment – Element 2 – page 69	X							X
10	1	CPCCCM1012A Work effectively and sustainably in the construction industry – Element 1 – page 14	X				X			
11	1	CPCCCOHS2001A Apply WHS requirements, policies and procedures in the construction industry – Element 5 – page 106–107		X			X			
12	1	CPCCCM1015A Carry out measurements and calculations – Element 3 – page 52			X					X
13	1	CPCCCM1014A Conduct workplace communication – Element 1 – page 38	X	X		X				
14	1	CPCCCM1012A Work effectively and sustainably in the construction industry – Element 1 – page 13					X		X	X
15	1	CPCCCOHS1001A Work safely in the construction industry – Element 1 – page 79	X	X			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
16 (a)	2	CPCCCOHS2001A Apply WHS requirements, policies and procedures in the construction industry – Element 2 – page 99	X				X		
16 (b)	2	CPCCCM2005B Use construction tools and equipment – Element 1 – page 68					X		X
16 (c)	2	CPCCCM2005B Use construction tools and equipment – Element 1 – page 68			X	X			X
17	5	CPCCCOHS2001A Apply WHS requirements, policies and procedures in the construction industry – Element 1 – page 95		X	X	X	X		
18 (a)	2	CPCCCM1015A Carry out measurements and calculations – Element 3 – page 52			X				X
18 (b)	3	CPCCCM1015A Carry out measurements and calculations – Element 3 – page 52			X				X
19 (a)	2	CPCCCM2001A Read and interpret plans and specifications – Element 2 – page 59	X						X
19 (b)	2	CPCCCM2001A Read and interpret plans and specifications – Element 1 – pages 57, 61	X						
19 (c)	2	CPCCCM2001A Read and interpret plans and specifications – Element 4 – page 60			X				X
19 (d)	2	CPCCCM2001A Read and interpret plans and specifications – Element 2 – page 59	X						
20 (a)	2	CPCCCOHS1001A Work safely in the construction industry – Element 1 – page 80	X			X			
20 (b)	3	CPCCCOHS1001A Work safely in the construction industry – Element 1 – page 79	X			X	X		
21	6	CPCCCOHS2001A Apply WHS requirements, policies and procedures in the construction industry – Element 5 – pages 104–107			X	X		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	CPCCCM1012A Work effectively and sustainably in the construction industry – Element 5 – page 26 CPCCCM2005B Use construction tools and equipment – Element 1 – page 69 CPCCCM1013A Plan and organise work – Element 2 – page 31	X	X	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)	6	CPCCCM1014A Conduct workplace communication – Element 2 – pages 44–45	X	X			X		X	
23 (b)	9	CPCCCM1013A Plan and organise work – Element 3 – page 33 CPCCCM1012A Work effectively and sustainably in the construction industry – Element 1 – page 13	X		X	X	X		X	