2024 HSC Construction Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 16 (a)

Criteria	Marks
• Correctly names the tool and outlines TWO uses	3
• Correctly outlines TWO uses OR • Correctly names the tool AND outlines ONE use	2
• Correctly names the tool OR outlines ONE use	1

Sample answer:

Spirit level, used to test if a surface is level or plumb and also can be used as a straight edge.

Question 16 (b)

Criteria	Marks
• Describes a range of safety checks before using a belt sander	3
• Outlines some safety checks before using a belt sander	2
• Provides some relevant information	1

Sample answer:

Preoperational safety checks could include checking the wear of the belt and that it is fitted facing the correct direction. Power cords would need to be checked for fraying, cuts, and any breakages.

Answers could include:

- Check condition of the belt
- Check testing and tagging is up to date
- Inspect cords and plug
- Inspect casing and overall machine
- Ensure all guards are fitted
- Ensure correct dust extraction is fitted and ready for use
- User has completed relevant training.

Question 17 (a)

Criteria	Marks
• Identifies ONE advantage and ONE disadvantage	2
• Identifies either an advantage or disadvantage	1

Sample answer:

Advantage – reduced time needed to complete measurement.
Disadvantage – will periodically need the battery to be replaced or recharged.

Answers could include:

Advantages:
- They can hold information
- Portable
- Easy to use
- Convenient.

Disadvantages:
- Are expensive
- Need to be maintained
- Need a clear line of sight
- Only measure internal dimensions.

Question 17 (b)

Criteria	Marks
• Outlines how incorrect measurements can affect a construction project	3
• Identifies consequences of incorrect measurements	2
• Provide some relevant information	1

Sample answer:

Incorrect measurements can affect the amount of materials ordered therefore leading to higher overall costs to both the customer and builder. This can also affect project completion time.

Answers could include:

- If not enough materials are ordered this would affect the project completion time and increase costs due to reordering and delivery costs.

Question 17 (c)

Criteria	Marks
• Describes in detail how engineering controls can be used to manage a hot and dusty work environment	5
• Describes how engineering controls can be used to manage a hot and dusty work environment	4
• Outlines the use of engineering controls to manage a hot and dusty work environment OR • Describes the engineering controls for either a hot or dusty work environment	3
• Shows a basic understanding of engineering controls in a work environment	2
• Provides some relevant information	1

Sample answer:

In managing a hot and dusty work environment, engineering controls play a pivotal role by directly modifying physical conditions to reduce risks.

One effective engineering control is the installation of specialised ventilation on systems that help regulate both temperature and dust levels.

These systems are designed to provide adequate air exchange, removing hot and contaminated air and replacing it with cooler, cleaner air.

This process not only cools the environment but also prevents dust from accumulating, which can significantly reduce the respiratory risk to workers.

Additionally, the use of water spray systems to control dust at the source is another key strategy.

Strategic placement of cooling units in areas where workers are concentrated helps mitigate the heat risk.

When combined, these engineering controls create a safer and more manageable environment for workers.

Answers could include:

Provide shade, heat reflective materials, cool drinking water, water misters, water suppression, dust extraction, ventilation, dust monitoring, air filtration and automation/mechanisation.

Question 18 (a)

Criteria	Marks
• Outlines the importance of feedback in communication with clients/customers	3
• Identifies the importance of feedback in communication with clients/customers	2
• Provides some relevant information	1

Sample answer:

Feedback is important in all communication as it allows the sender and receiver to confirm the communication. Feedback ensures both parties understand the message and any issues or problems have been addressed.

Answers could include:

- To ensure the correct message has been delivered
- Feedback helps the sender to check the correct message has been understood
- Acts as the bridge between sender and receiver
- Clarification
- Validation
- Continuous improvement
- Problem solving.

Question 18 (b)

Criteria	Marks
• Describes the importance of correctly storing reusable materials on a building site	3
• Outlines the importance of correctly storing reusable materials on a building site	2
• List storage methods on a building site	1

Sample answer:

The importance is that when materials are stored correctly, they are easy to access and ready for use. This reduces delays and improves efficiency. Storing materials correctly also has a positive effect on the environment as they can be reused many times.

Answers could include:

- Cost efficiency – prevents damage, means materials are ready to be used at all times.
- Resource conservation – by preserving and reusing materials building sites will have a reduced demand for new materials which promotes sustainability which in turn saves money and the environment.
- Stacking – correct stacking will maintain the integrity of the material for example will reduce timber lengths twisting or bowing
- Packing – correct packing improves life of materials
- Strapping – correct strapping increases the usefulness of materials, reduces damage.

Question 18 (c)

Criteria	Marks
• Clearly explains factors that need to be considered during the planning and preparation stage of a project	4
• Describes factors to be considered during the planning and preparation stage of a project	3
• Outlines planning and preparation of a project	2
• Lists factors of planning and preparation	1

Sample answer:

Factors that need to be considered during planning and preparation on a building site include estimating the number and type of workers needed. It also sets goals and stage completion dates to keep the build moving smoothly. It also allows for the correct tools, equipment, materials, and consumables to be ready and onsite as well as being planned and sequenced efficiently.

Answers could include:

Optimum resource use – not wasting money having equipment sitting idle

Timing – realistic timelines and deadlines for parts of the construction process are crucial. It provides a map of what and when things should be completed. This ensures the correct number and correct type of workers are onsite as needed and this prevents delays in construction.

Risk mitigation – thorough planning involves identifying potential risks or problems such as weather or supply issues. Planning and preparation allows for contingency plans to be developed to ensure a smooth flowing build.

Question 19 (a)

Criteria	Marks
• Correctly calculates the perimeter	2
• Shows some logical steps	1

Sample answer:

$\sqrt{3^2 + 4^2} = 5$

$4 + 6 + 8 + 3 + 5 = 26 \text{ m}$

Question 19 (b)

Criteria	Marks
• Correctly calculates the volume of the concrete slab minus the hole	3
• Correctly calculates the volume of the concrete slab	2
• Shows a relevant calculation	1

Sample answer:

$8 \times 6 \times .15 = 7.2\ m^3$ (concrete slab)

$\pi r^2 \times \text{depth} = 3.14 \times 1^2 \times 0.15 = 0.471$

$7.2 - 0.471 = 6.73\ m^3$

Question 19 (c)

Criteria	Marks
• Correctly calculates the volume of sand	2
• Shows a relevant calculation	1

Sample answer:

$11.6\ m^3 \div 6$ parts = 1 part = $1.93\ m^3$

Sand 2 parts = 1.93×2

= $3.86\ m^3$

Question 19 (d)

Criteria	Marks
• Correctly calculates cost	2
• Shows a relevant calculation	1

Sample answer:

8 tonnes × \$1.18 = \$9.44

\$9.44 × 13 km = \$122.72

Section III

Question 20 (a)

Criteria	Marks
• Correctly describes in detail TWO appropriate power or pneumatic tools	5
• Correctly describes TWO appropriate power or pneumatic tools	4
• Identifies TWO appropriate tools	3
• Outlines the use of an appropriate tool	2
• Lists an appropriate tool	1

Sample answer:

During the completion of a carport many power or pneumatic tools could be used. One of these tools is a drop and slide saw to dock timber to length. Also, an impact driver could be used to drive in screws or screw down roofing sheets. A pneumatic nail gun could be used to shoot nails into the frame and attach the roofing battens.

Answers could include:

- Cordless drill
- Drop saw
- Circular saw
- Angle grinder
- Nibbler
- Nail gun.

Question 20 (b)

Criteria	Marks
• Provides a comprehensive explanation of the safe work procedures and practices	9–10
• Provides a sound explanation of the safe work procedures and practices	7–8
• Provides an explanation of the safe work procedures and practices	5–6
• Outlines safe work practices	3–4
• Provides some relevant information	1–2

Answers could include:

- White cards
- Workplace signage
- Identify hazards
- Hierarchy of risk management
- Comply with Safe Work NSW
- Site induction
- First aid
- Safety data sheets (SDS)
- Workplace signage
- Manual handling/training
- Job sequencing
- Job safety analysis (JSA)
- Safe work method statement (SWMS)
- Standard operating procedure
- Workplace documentation and plans
- Personal protective equipment (PPE)
- Electrical safety
- Good housekeeping
- Ergonomics/posture.

Section IV

Question 21

Criteria	Marks
• Demonstrates a comprehensive knowledge and understanding of how industry can minimise its impact on the environment • Provides a logical and cohesive response using relevant examples	13–15
• Shows a sound knowledge and understanding of how industry can minimise its impact on the environment • Provides a clear and organised response using relevant examples	10–12
• Shows a general understanding of how industry can minimise its impact on the environment • Uses some general examples	7–9
• Shows a basic understanding of either impacts or the environment	4–6
• Provides some awareness of impacts in the construction industry	1–3

Answers could include:

Minimising negative impacts on the environment through environmentally sustainable work practices:

- Approved disposal of waste
- Complying with Basix requirements
- Limiting noise and dust
- Maintenance of tools, equipment and machinery
- Management of chemicals/gas spillage/leakage and clean-up processes
- Monitoring vibrations
- Protecting discharge into waterways/stormwater
- Safe handling and storage of hazardous materials
- Testing pipes and using efficient fittings
- Utilising alternative energy sources
- Protecting wildlife habitats
- Reducing soil erosion
- Using resources that are biodegradable, non-toxic, recoverable, recyclable, renewable, reusable.

2024 HSC Construction Mapping Grid

Section I

Question	Marks	HSC content – focus area
1	1	Safety — safety signage colour meaning pg 24
2	1	Tools of the trade — hammer type/use pg 36
3	1	Tools of the trade — hacksaw use pg 36
4	1	Skills in construction — equipment used to measure pg 32
5	1	Skills in construction — scales on site plan pg 31
6	1	Tools of the trade — faults – safety guards pg 39
7	1	Working in the industry — communication sender receiver pg 45
8	1	Safety — fire extinguisher colour use fire hose use pg 27
9	1	Skills in construction — calculation conversion of units pg 32
10	1	Working in the industry — sustainable practice pg 47
11	1	Skills in construction — site/block plan pg 31
12	1	Working in the industry — trade unions pg 43
13	1	Safety — confined spaces or working at heights or working alone pg 25
14	1	Skills in construction — symbols – datum pg 30
15	1	Tools of the trade — compressor regulator pg 37

Section II

Question	Marks	HSC content – focus area
16 (a)	3	Tools — hand tool pg 36
16 (b)	3	Tools — maintenance – hand tool pg 37
17 (a)	2	Skills — advantage/disadvantage of using laser measure device pg 32
17 (b)	3	Skills — incorrect measurements pg 32
17 (c)	5	Safety — hierarchy of risk control: Impact on industry – with relevant industry example pg 25
18 (a)	3	Industry — methods of communication on a jobsite pg 45
18 (b)	3	Industry — site clean up pg 38
18 (c)	4	Industry — work sequencing, planning, and organising pg 44
19 (a)	2	Skills — area, volume, ratio pg 33
19 (b)	3	Skills — area, volume, ratio pg 33
19 (c)	2	Skills — area, volume, ratio pg 33
19 (d)	2	Skills — area, volume, ratio pg 33

Section III

Question	Marks	HSC content – focus area
20 (a)	5	Tools — selection and safety pg 36–38
20 (b)	10	Safety — safe work procedures and practices pg 25–27

Section IV

Question	Marks	HSC content – focus area
21	15	Industry — working sustainably pg 46–48