

# 2009 HSC Construction

## Sample Answers

This document contains 'sample answers', or, in the case of some questions, 'answer may include'. These are developed by the examination committee for two purposes. The committee does this:

- (a) as part of the development of the examination paper to ensure the questions will effectively assess students' knowledge and skills, and
- (b) in order to provide some advice to the Supervisor of Marking about the nature and scope of the responses expected of students.

The 'sample answers' or similar advice, are not intended to be exemplary or even complete responses. They have been reproduced in their original form as part of the examination committee's 'working document'. While the handwritten notes have been typed for legibility, no further editorial change or addition has occurred.

## Section II

### Question 16 (a)

*Sample answer:*

Grind the blade square at angle of 20–25° and remove any gaps. Do not overheat or burn the edge of the blade.hone to an angle of plus 5° on an oil stone. Remove the burr.

*Answers could include:*

Grinding:

- Correct angle 20–25°
- Do not burn or overheat the edge
- Square blade
- Remove any gaps

Honing:

- +5° on grind
- Figure of 8 motion
- Remove burr

### Question 16 (b)

*Sample answer:*

To prevent end grain splitting the 45° chamfer should be planed from either end towards the middle, with a sharp finely adjusted blade.

*Answers could include:*

- Planing towards middle across end grain
- Use of stop board, clamped across end grain
- Indication of angle of plane at 45° to produce chamfer

**Question 17*****Sample answer:***

To reduce hazards a safe passage around the site should be established using fencing, signage, bunting, tape, lighting at night and traffic control personnel. A risk assessment should be conducted and an emergency plan prepared.

***Answers could include:***

- Caution signage
- Bunting tape
- Traffic control personnel/ security
- Lighting if at night
- Wash down bay
- Grates
- Signage
- Safe passage around site
- Fencing

**Question 18*****Sample answer:***

Remove the worker from the enclosed area if safe to do so and contact first aid personnel. Apply DRABCD and contact '000' for emergency advice and help. Place the victim in the recovery position and monitor regularly. The area should be sealed off and a chemical response team should be contacted to clean up the spill.

***Answers could include:***

- Describe DRABCD
- Contact Emergency help/first aid
- Ring 000
- Ventilate enclosed area
- Remove worker from enclosed area
- Use PPE to remove worker

**Question 19 (a)*****Sample answer:***

The purpose of an OHS committee is to ensure that the work place is safe. It carries out site inspections to determine areas of concern and makes recommendations to management.

Regular meetings are held with minutes taken.

***Answers could include:***

- Site inspection/s to raise concerns to management
- A group to whom workers can report OHS issues regarding the work site
- Hold regular meetings to discuss relevant issues
- Raise concerns with upper management
- Liaise with relevant unions/management when OHS issues arise
- Support a safe work environment for all workers

**Question 19 (b)*****Sample answer:***

The employer is responsible for training, the development of procedures and providing protective items. The employee must complete training programs, follow set procedures and use supplied equipment.

***Answers could include:***

Employer – monitoring of employees

- Training of employees
- Policies and procedures relating to UV radiation
- Provision of protective equipment/ items

Employee

- Completion of training programs
- Following procedures to help prevent UV radiation
- The use of equipment/ items
- Reporting to management regarding UV issues and concerns

**Question 20*****Sample answer:******Portable air compressor (electric motor):***

Maintaining this plant would include: checking the oil level indicator, leaks, splits in air hoses, draining the air tank, cleaning the air filter, electrical tagging, belt condition and regulator/pressure indicator workability.

Safe usage could include placement on a level surface, secured adequately to avoid movement under operating vibrations, with a suitable cover to protect from the elements (weather) and positioned so that operating noise does not affect workers etc. Storage should be in a secure dry area, preferably located away from possible intruders, where cool air free of dust is available.

OR

***Portable electric generator:***

Maintaining this plant would include: checking that oil, water and fuel levels are correct, cleaning air filter regularly, replacing the pull start cord as needed, checking power point outlets for wear and damage, ensure the correct oil/petrol mix is used.

Safe usage could include: placing of plant on stable level surface, securing so that plant cannot move under operating vibrations, placing so that noise of operation does not impact on workers' conditions. Accessibility for refuelling, storing undercover in a clean, dry, dust/dirt free and lockable environment.

OR

***Concrete drum mixer (electric):***

Maintaining this plant could include: electrical tagging of power supply, checking adequate air pressure in tyres, greasing to sprocket drive or checking of belt for frays or wear. Checking drum for cracks, leaks and build up of dried residue.

Safe usage could include stable placement so that under operating conditions plant is secure, positioning such that drum contents can be easily transferred into waiting wheelbarrow, careful washing inside barrel/drum carried out at regular intervals to avoid build up of material, storage should be done undercover in a secure, dry and preferably lockable environment.

***Answers could include:***

Identify plant:

Maintenance:

- Cleaning
- Electrical testing
- Grease mechanical parts
- Replace worn parts

Safe usage:

- Safe work method statement
- Induction training on small plant
- Use of PPE

Storage:

- Clean and dry

- Lockable area
- Allocated location away from traffic

**Question 21****Sample answer:**

The staff is used to measure heights or transferring levels for the rise or fall from a datum. It is used in conjunction with a clumpy, automatic or laser level.

**Answers could include:**

Measuring tool:

- Staff
- Measuring heights or transferring levels down sloping sites

**Question 22 (a)****Sample answer:**

<b>Total length</b>	<b>Cost</b>
9.0	\$44.46
7.2	\$35.57
3.6	\$44.64
1.5	\$4.20
<b>Total cost</b>	<b>\$128.87</b>

**Question 22 (b)****Sample answer/Answers could include:**

Jarrah (hardwood)

Justification:

- Outdoor, durable hardwood
- dense, uniform grain
- machinability good, accepts range of finishes readily

Other timbers could include:

- Treated pine
- Merbau
- Tasmanian Oak

**Question 22 (c)*****Sample answer:***

A corrosion resistant fastener such as bugle head batten screw or cup head bolt, nut, and washer. Materials could include stainless, zinc plated, galvanised.

***Answers could include:***

Corrosion resistant (galvanised/zinc plated) fasteners

- Bugle head batten screws
- Cup head bolts/ washer/ nuts
- Standard bolt/ washer/ nut – requiring counter boring/ spot facing

Mention of suitable material including:

- Galvanised
- Stainless Steel
- Zinc plated

**Question 22 (d)*****Sample answer:***

Place table on slab and check level of top of table by placing spirit level across both length and width of table. Trim legs by cutting to achieve accurate level prior to fixing.

***Answers could include:***

- Place spirit level across both diagonals, length and width of the table
- Recognition for plumb, if a roof is attached
- Recognition for cutting legs, if required to achieve level

**Question 22 (e)*****Sample answer:***

Use a dynabolt, masonry anchor or plug to fix metal bracket to slab. Use masonry drill bit in an impact / hammer drill.

Use a coach screw, galvanised bolt, nut and washer or bugle head and screw through bracket into table leg.

***Answers could include:***

- Dynabolt/ masonry anchor through metal (galvanised) bracket into concrete. (Requires masonry drill and impact/ hammer drill).
- Coach screw/ galvanised bolt and nut/ washer or bugle head batten screw through bracket into table leg.



**Question 23*****Sample answer/Answers could include:***

*Prohibition signs:* Prohibited or 'do not do' signs include a red circle with a diagonal line on a white background e.g. no smoking

*Hazard warning:* Yellow triangle with a black border which should be found near the hazard e.g. flammable gas

*Emergency:* Green with a white symbol. Usually indicate first aid / emergency

*Information signs:* action signs. e.g. eye wash, emergency exit.

## Section III

### Question 24

*Sample answer/Answers could include:*

- Both positive and negative changes in economic climate occur
- Depending on which positive or negative – growth/ decline, industry responses vary
- Employers are unlikely to employ additional personnel in tough economic times
- Employers possible streamlining or reduction of workforce to minimise profit loss during economic downturn
- Employees are likely to refrain from seeking alternate employment, possible promotion/ higher income due to unstable climate and need for stable income
- Manufacturers may limit production runs to satisfy market demands
- Manufacturers may reduce cost savings to clients during economic low periods to minimise profit loss
- Government may offer business incentives to retain workforce
- Governments consider options that may include stimulating the economy
- Governments devise apprenticeship employment schemes to encourage industries to continue training personnel
- Clients defer projects or cancel projects
- Clients are forced to borrow money to meet increasing costs.

**Question 25*****Sample answer/Answers could include:***

- Clear understanding by workers of procedure to follow/ meeting point
- Shut down/ cease work procedures to follow
- Head count by management to account for all workers
- Designated route to follow to assembly point
- Management requirement that workers are trained in correct handling of appropriate fire extinguisher for electrical fire
- Post incident OHS committee debrief on cause/ effect of fire and evaluation of management organisation for evacuation procedure
- Assessment of/ success of signage in directing personnel to meeting point
- Could necessitate need for Workcover investigation pending severity of fire
- Resultant impact on productivity will be negative due to time out off site
- Possible management of injuries to worker(s) by fire DRABCD
- Emergency services called where applicable
- Clean up procedures
- Disposal of waste following EPA guidelines
- Ordering of new stock/plant
- Introduction of new procedures and equipment.

## Question 26

### *Sample answer/Answers could include:*

Related hazards:

- Access to site, movement and traffic control while concrete machinery is on site and during pour. Consideration of placing concrete by barrow or pump
- Understanding of length of time due to size of slab indicates knowledge of plan interpretation
- Potential damage to sewer line / main requires addressing
- Potential damage to water main requires addressing
- Potential minimisation of interruption to traffic while truck is on site by locating truck to east of proposed driveway
- Manual handling– back strain during placement of concrete and throughout screeding process
- UV exposure and minimal contact with steel
- Work method statements covering manual handling
- Potential damage to kerb through equipment and/or trucks

Potential risk control:

- Traffic control while truck is entering / exiting site
- Temporary parking of cement mixer / truck while on site in relation to sewer / water mains
- PPE required by contractors during placement and finishing of concrete. i.e. safety boots / gumboots to prevent injury to feet while on reinforcement mesh
- Site foreman to control flow / movement of concrete to formwork to ensure minimal strain

Responsibilities:

- Site foreman– traffic control / coordination of truck movement on / off site
- Concrete truck driver
  - Positioning of truck on site to allow economical placement of concrete
  - Knowledge of location of sewer / water mains
  - Cleaning up of shoots on completion so as not to impact on kerb, channel and road
- Contractors / tradespeople
  - Responsible placement of concrete to formwork
  - Quality finish to surface
  - Responsible clean up of tools and equipment
  - Security to / around driveway during curing process
- Rubble drain with agricultural line to collect and divert surface water to street
- Bales of hay used to retain eroded soil and divert water to a rubble drain. Bales are held in position with star pegs
- Silt trap at site entrance.