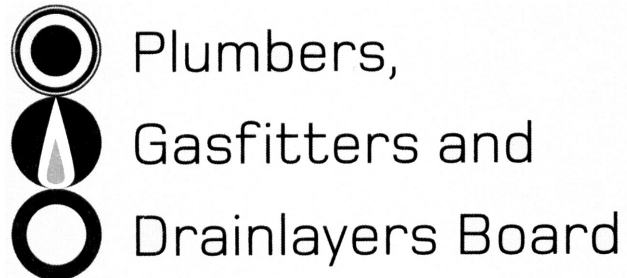


No. 9195



REGISTRATION EXAMINATION, JUNE 2012  
**CERTIFYING PLUMBER**

**ANSWER SCHEDULE**

## ANSWER 1

(a)

Name	Highest rating
Reduced pressure zone device	High
Double check valve assembly	Medium
Pressure type vacuum breaker	High
Atmospheric vacuum breaker	High

(1 mark each)

**Total 8 marks**

## ANSWER 2

- (a) Relief vent installed correctly for lower section of stack.  
Relief vent installed correctly for upper section of stack.  
Cross relief vents installed correctly at each level required. (3 marks)

- (b) 50 mm. (1 mark)

(c)

Total discharge loading for stack	87
Minimum diameter of pipe at point A	100 mm
Maximum length of section B	10 metres
Maximum length of section C	1.5 metres
Maximum length of section D	2.5 metres
Minimum height of section E	600 mm
Minimum length of section F	1 metre
Minimum gradient of section F	1.65%
Minimum height of section G	900 mm
Maximum length of section H	6 metres
Minimum diameter of pipe at point I	50 mm
Minimum diameter of pipe at point J	65 mm
Minimum diameter of pipe at point K	100 mm

(13 marks each)

**Total 17 marks**

**ANSWER 3**

Index length of installation	Pressure drop
59 (2 marks)	31 (2 marks)

Pipe Section	Probable simultaneous demand (L/s)	Nominal pipe size (DN)
A-B	1.30 (1 mark)	32 (1 mark)
B-C	0.88 (½ mark)	25 (½ mark)
C-D	0.70 (½ mark)	25 (½ mark)
D-E	0.48 (½ mark)	20 (½ mark)
D-F	0.48 (½ mark)	20 (½ mark)
B-G	0.88 (½ mark)	25 (½ mark)
G-H	0.70 (½ mark)	25 (½ mark)
H-I	0.48 (½ mark)	20 (½ mark)

**Total 13 marks****ANSWER 4**

- (a) Answer: AS3500 Part 2 13.2.2  
Any TWO tests

Method	Pressure
Hydrostatic (1 mark)	Spill level of highest fixture or flood level of lowest fixture not exceeding 3 m (1 mark)
Air test (1 mark)	10 kPa (1 mark)
Vacuum Test (1 mark)	10 kPa (1 mark)

**Total 4 marks**

## ANSWER 5

Provide and maintain for employees a safe working environment.  
Provide and maintain for employees while they are at work facilities for their safety and health.  
Ensure that plant used by any employee at work is safe for the employee to use.  
Ensure that while at work employees are not exposed to hazards.  
Develop procedures for dealing with emergencies that may arise while employees are at work.

**Total 5 marks**

## ANSWER 6

- (a) To stop the spread of fire and smoke from one fire cell to another.  
(Any TWO, 1 mark each), (2 marks)
- (b) In the event of a fire the fire collar expands crushing the pipe sealing the penetration.  
(Any TWO, 1 mark each), (2 marks)
- (c) The fire collar must match the rating of the higher area. (1 mark)

**Total 5 marks**

## ANSWER 7

- (a) Grey, Blue, Red. (3 marks)
- (b) Make sure you have plans of the underground services in the area.  
Use a cable and pipe locator to trace electricity cables and metal pipes.  
Mark the positions of the cables and pipes using paint or other waterproof marking on the ground.  
Look for signs of service connection cables or pipes, e.g. a gas meter or service connection entry into a house or a street light.  
Hand dig trial holes (as many as necessary) to confirm the position of services in the area of your work. (5 marks)
- (c) Any FIVE (1 mark each)  
Unguided boring.  
Directional boring.  
Mole ploughing.  
Impact moling.  
Auger boring.  
Insertion.  
Thrusting.  
Pipe bursting. (5 marks)

- (d) The excavation is at a greater depth than 300 mm within 2.2 m of the pole or stay wire of the line.  
The excavation is at a greater depth than 750 mm between 2.2 m and 5 m of the pole or stay wire.  
The excavation creates an unstable batter. (3 marks)
- Total 16 marks**

## ANSWER 8

Drawing to show:

- Isolation valves on inlet and outlet. (1 mark)  
Unions between isolation valves and inlet and outlet. (1 mark)  
Non return valve on delivery side before the isolation valve. (1 mark)  
Pressure gauges on inlet and outlet. (1 mark)

**Total 4 marks**

## ANSWER 9

- (a) Prior to initial use.  
Whenever the tank is taken out of service for inspection, repairs, painting or other activity that might lead to contamination of water. (2 marks)
- (b) **Option 1**  
Tank is filled to overflow level with water that has had chlorine is added using gas-feed equipment of chemical pump.  
The chlorine solution must be at least 10 mg/L for the entire test time.  
The tank is to remain full for 6 hours.  
The tank is then drained and flushed with drinking water before refilling.
- Option 2**  
Tank is filled to overflow level with water.  
Chlorine is added to the water within the tank.  
The chlorine solution must be at least 10 mg/L for the entire test time.  
The tank is to remain full for 24 hours.  
The tank is then drained and flushed with drinking water before refilling.
- Option 3**  
A chlorine solution (200 mg/L) is sprayed on all surfaces of the tank.  
The surfaces shall remain wet with the solution for at least 30 minutes.  
The surfaces are hosed down and flushed with drinking water before refilling. (Any one option 4 marks)
- (c) Chemical composition of the water.  
The amount of organic material present. (2 marks)

**Total 8 marks**

## SECTION B

- 1 B When the installation is complete, before hydrostatic testing (AS3500 Part 1 16.2).
- 2 D 22
- 3 C On the return line between the heat exchanger and the secondary circuit.
- 4 D Long branches feeding the fire hose reels.
- 5 B The latitude of the installation.
- 6 D The solar panel.
- 7 A A solar water heating system that feeds an electric storage water cylinder.
- 8 C One heat source can be used for both potable and non-potable hot water supplies.
- 9 E Water hammer.
- 10 C A double-bowl vanity where the two bowls share one trap.
- 11 A Temperature must reach 60°C or higher once a week for not less than 1 hour.
- 12 A 500 mm.
- 13 B 4 meters.
- 14 E 1800.
- 15 B 300.
- 16 E 45°
- 17 D 15 years.
- 18 E 50 years.
- 19 C Once every year.
- 20 B E2.

**Total 20 marks**