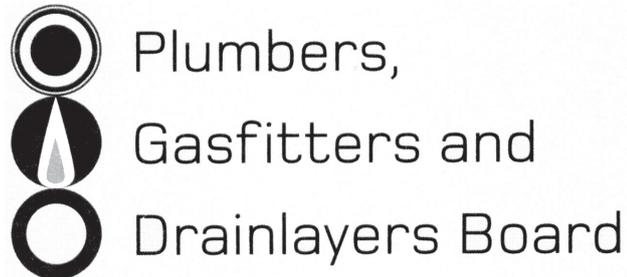


No. 9195



REGISTRATION EXAMINATION, JUNE 2014  
**CERTIFYING PLUMBER**

**ANSWER SCHEDULE**

## ANSWER 1

Pressure relief valve. (1 mark)

Cold water supply to isolating valve. (1 mark)

Cold water from isolating valve to current inlet. (1 mark)

Hot water to spout. (1 mark)

**Total 4 marks**

## ANSWER 2

(a)  $A = 0.00147 \text{ m}^3$  (1 mark)

$B = 0.00126 \text{ m}^3$  (1 mark)

$C = 0.00071 \text{ m}^3$   
 $D = 0.00053 \text{ m}^3$   
 $E = 0.00124 \text{ m}^3$  } (1 mark)

Total volume  $0.005207 \text{ m}^3$  (1 mark)

(4 marks)

(b)  $0.005207 \text{ m}^3 = 5.207 \text{ litres}$

$5.207 + 1500 = 1505.207$  ( $\frac{1}{2}$  mark)

$1505.207 \times 50 = 75260.35$  (1 mark)

No. of grams = 75.26 ( $\frac{1}{2}$  mark)

(2 marks)

(c) Too much organic matter etc.

(1 mark)

**Total 7 marks**

### ANSWER 3

Index Length	Pressure Drop
32.8 m	50 – 3 – 5 = 42

Pipe section	Total Loading Units	Probable Simultaneous Flow Rate (L/S)	Pipe size (DN)
A – B	26	0.43	20
B – C	3	0.14	15
C – D	2	0.10	15
C – E	1	0.10	15
B – F	23	0.41	18
F – G	3	0.14	15
G – H	2	0.10	15
F – I	20	0.38	18
I – J	10	0.26	18
J – K	7	0.22	15
K – L	4	0.20	15
I – M	10	0.26	18
M – P	8	0.20	15
M – N	2	0.10	15

Length = 3 marks

Pressure Drop = 2 marks

Each pipe section – 3 columns correct 1 mark

– 2 columns correct ½ mark

**Total 19 marks**

### ANSWER 4

If fixtures discharging to FWG – must be correct. (2 marks)

All fixtures connected. (2 marks)

Minimum diameters of pipework. (3 marks)

Vent in correct location. (1 mark)

Vent correct size. (1 mark)

**Total 9 marks**

## ANSWER 5

- Branch drain connections. (3 marks)  
Sizing of FWG if used. (1 mark)  
Venting. (2 marks)  
Relief vent. (1 mark)  
Cross venting (1 mark)  
Minimum diameters. (3 marks)

**Total 11 marks**

## ANSWER 6

- (a) A solar collector is used to initially heat the water. If the required temperature cannot be reached a secondary heat source (element/gas burner) will activate to raise the water temperature to the desired setting.

(b)

Situation	Temperature required
Supply to a basin at a preschool	45
Supply to a kitchen sink in a commercial building	55
Supply to a bath in a domestic dwelling	55
Internal cylinder temperature to prevent growth of legionella bacteria	60

(2 marks)

- (c) A 25 mm air gap and tundish must be included before the drain exits the buildings thermal envelope.  
The drain may receive the discharge from only one valve.  
The drain from the tundish to the discharge point must be one size larger than the valve outlet diameter.

(3 marks)

- (d) 3 × seismic straps complete with fixings (1 mark)  
Top and bottom strap max 100 mm from end of HWC (1 mark)  
2 × battens (1 each side of HWC) complete with fixings (1 mark)  
Battens 50 mm × 50 mm (1 mark)

(4 marks)

**Total 11 marks**

## ANSWER 7

(a) Any THREE (1 mark each)

- Total restraint systems.
- Fall arrest systems.
- Work positioning systems.
- Industrial rope access systems.
- Safety lines, lifelines, prescribed or proprietary (engineered) systems.

(3 marks)

(b) If the anchor point for the fall arrest system is located in an inappropriate spot and a fall occurs it can cause the worker to swing down or across and become injured on the ground or adjacent wall.

(2 marks)

(c) Any TWO (1 mark each)

Place the anchorage point at a right angle to the position of the line at the perimeter edge; a mobile anchorage is of assistance here.

Use secondary anchor points and/or anchor lines.

Use a perimeter guardrail to prevent any fall over the perimeter edge.

(3 marks)

**Total 8 marks**

## ANSWER 8

(a) Diagram to include:

- Cross-sectional diagram. (1 mark)
- Two check valves. (2 marks)
- Relief valve operated by diaphragm. (1 mark)
- Test points included on inlet, middle chamber and outlet. (3 marks)
- Labels. (1 mark) (8 marks)

(b) Any TWO (1 mark each)

- Back siphonage.
- Back pressure with faulty 2nd check valve OR split diaphragm OR faulty 1st check valve.
- Static (no flow) with faulty 1st check valve.

(2 marks)

**Total 10 marks**

## ANSWER 9

- (a) (i) Any TWO (1 mark each)
- Boiler lagging.
  - Pipe insulation.
  - Old ceiling insulation.
  - Accept other correct answers. (2 marks)
- (ii) Any TWO (1 mark each)
- Roofing tiles.
  - Vinyl underlay.
  - Gas flue.
  - Old water pipes.
  - Accept other correct answers. (2 marks)
- (b)
- Notify WorkSafe.
  - Notify the building owner. (2 marks)

**Total 6 marks**

## SECTION B

- 1 A 20 mm  
2 D 160 mm  
3 E 1800 mm  
4 C 85 mm  
5 B 10°  
6 D 200 mm  
7 C Lead  
8 D 200 mm  
9 B Above the workers head height.  
10 A 1:20  
11 D 725 mm  
12 E 6  
13 C 65 mm  
14 E 600 mm  
15 B 50 mm  
16 C Once every year.  
17 A When the bypass has a device installed with the identical rating as the device being bypassed.

**Total 17 marks**