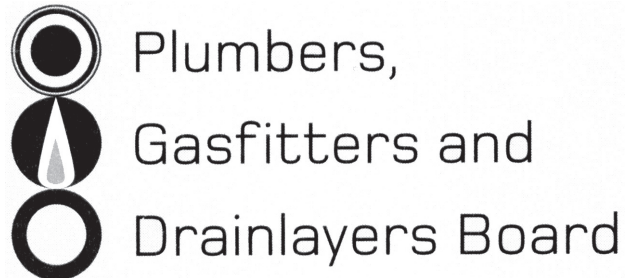


No. 9195



REGISTRATION EXAMINATION, NOVEMBER 2022  
**CERTIFYING PLUMBER**

**ANSWER SCHEDULE**



## ANSWER 1

- (a) Any fixtures discharging to ORG correct size.  
System vented in correct location(s).  
Any FWGs correctly charged.  
Underfloor pipework and branches sized correctly.  
All fixtures allowed for.  
No changes to drainage plan.

**Total 9 marks**

## ANSWER 2

- (a) (i) 300 mm. (1 mark)
- (ii) Correct points indicated (bottom of valve and ground). (1 mark)
- (b) Any TWO (1 mark each):
- Back siphonage caused by drop in inlet pressure.
  - Back pressure with faulty 2nd check valve.
  - Split diaphragm.
  - Faulty 1st check valve. (2 marks)
- (c) Independent Qualified Person (IQP). (1 mark)
- (d) Local territorial authority. (1 mark)

**Total 6 marks**

## ANSWER 3

Pipe section	Number of clips
A – B (25 mm)	8
B – C (20 mm)	$4 + 4 = 8$
C – D (15 mm)	3
C – E (15 mm)	$7 + 3 = 10$
B – F (20 mm)	6
F – G (15 mm)	$5 + 3 = 8$
F – H (15 mm)	$7 + 4 = 11$

**Total 7 marks**

**ANSWER 4**

Index Length	Pressure Drop
31 – 33 m	37.5 kPa

Pipe section	Total loading units	Probable simultaneous flow rate (L/s)	Pipe size (DN)
A – B	18	0.36	18
B – C	2	0.10	15
B – D	16	0.34	18
D – E	1	0.10	15
D – F	15	0.33	18
F – G	2	0.10	15
F – H	13	0.30	18
H – I	8	0.20	15
H – J	5	0.18	15
J – K	2	0.10	15
J – L	3	0.20	15

**Total 16 marks****ANSWER 5**

$$615 - (300 + 200 + 45) = 70$$

(1 mark)

$$4100 + 100 = 4200$$

(1 mark)

$$\frac{4200}{70} = 60$$

Gradient 1:60

(1 mark)

**Total 3 marks**

## ANSWER 6

- (a) Dead legs.  
Stored water at bacteria friendly temperatures.
- (b) Any TWO (1 mark each):  
Open all outlets regularly.  
Keep the thermostat of storage water heater set to above 60°C.  
Install a UV filter.  
Treat the water.  
Lag the pipework.

(2 marks)

(2 marks)

**Total 4 marks**

## ANSWER 7

- (a) (i) Any FOUR (½ mark each):
- Lead.
  - Adhesives/sealants.
  - Solvents.
  - Solder.
  - Flux.
  - Concrete.
- (ii) Material safety data sheet.
- (iii) Any THREE (1 mark each):
- PPE gear to be used.
  - Chemical properties of the substance.
  - First aid required should harmful contact occur.
  - Advice on who/where to contact (hospital, poison helpline etc) should further assistance be required.
  - Spill management.
  - Procedure for storage and transport.

(2 marks)

(1 mark)

(3 marks)

(b)	Action	Minimise	Eliminate
	Training staff in correct use of equipment	✓	
	Completing work usually performed at heights on ground level		✓
	Providing screens around an area where welding is taking place	✓	
	Using edge protection when working at heights	✓	

(2 marks)

(c) Any FOUR (1 mark each):

Assess any risks to personal safety.

Provide first aid to the victim without endangering yourself.

Contact medical help if required.

Complete the accident register and any other paperwork or notification necessary.

Make any possible changes to ensure accident will not reoccur.

Review procedures to check if the changes made are lowering the accident rate.

(4 marks)

(d) Any FOUR (1 mark each):

How to adjust guards.

PPE to be worn.

Method of isolation – turning on and off.

Pre-use inspections.

Procedure to be followed in emergency.

Correct operating procedure.

(4 marks)

**Total 16 marks**

## ANSWER 8

$$T1 = 42 - 13 = 29$$

(½ mark)

$$T2 = 65 - 13 = 52$$

(½ mark)

$$\text{Flow rate} = 9/60 = 0.15 \text{ litres per second}$$

(1 mark)

$$\begin{aligned} \text{Storage required} &= \frac{420 \times 0.15 \times 12 \times 29}{52 \times 0.85} \\ &= 496 \text{ litres} \end{aligned}$$

(2 marks)

(1 mark)

(5 marks)

(b) 3 restraints

Strap 100 mm down from top.

Strap 100 mm up from bottom.

Strap in middle.

Wooden batten down each side of the cylinder.

(4 marks)

**Total 9 marks**

## ANSWER 9

Item	Length of time (years)
Single-lever mixer including flexible connections	5
Under-slab discharge pipework	50
EDPM rubber boot flashing used to seal a roof penetration	15

**Total 3 marks**

## ANSWER 10

(a) 600 mm vertically from the top of the main drain. (2 marks)

(b) EITHER (1 mark)

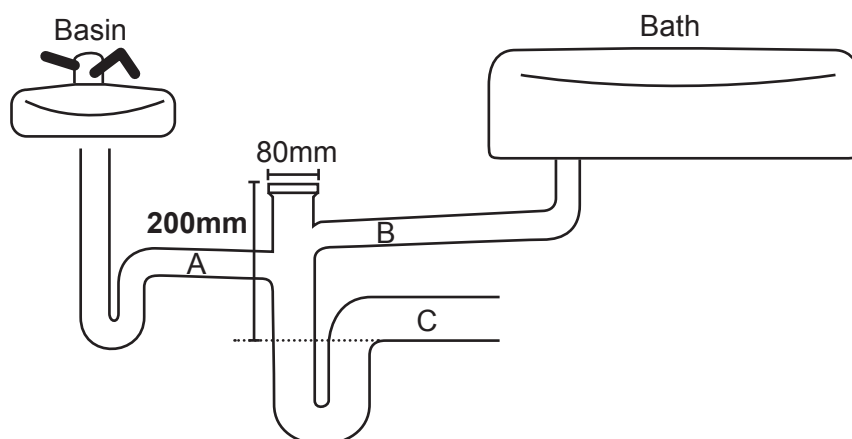
- If foaming is likely. (1 mark)
- If the stack was more than five levels high.

(c) To prevent trap seal loss due to pressure changes. (2 marks)

**Total 5 marks**

## ANSWER 11

(a) (i)



(2 marks)

(ii) 2.5 m (1 mark)

(iii) 1.2 m (1 mark)

(iv) 7 (2 marks)

(v) 65 mm (1 mark)

- (b) (i) Any TWO (1 mark each)  
WC.  
Kitchen sink.  
Slop hopper.  
Laboratory sink.  
Another floor waste gully.

(2 marks)

- (ii) Any ONE (1 mark)
- To prevent smells entering the building.
  - To prevent a chemical reaction from drainage from a laboratory sink.
  - To prevent foam discharging from the floor gully waste.

(1 mark)

**Total 10 marks**

## **SECTION B**

1. A Slop hoppers.
2. A A urinal.
3. A 115
4. C 27
5. D 125
6. A In the event of a waste pipe blockage, dirty water from one sink could contaminate clean water in the other.
7. B The fixture discharge pipe connects to the floor waste gully below the top of the water seal.
8. C Tundish.
9. C 40 mm.
10. A 3
11. C 3 minutes stabilisation followed by a 2 minute test.
12. D 1500 kPa.

**Total 12 marks**