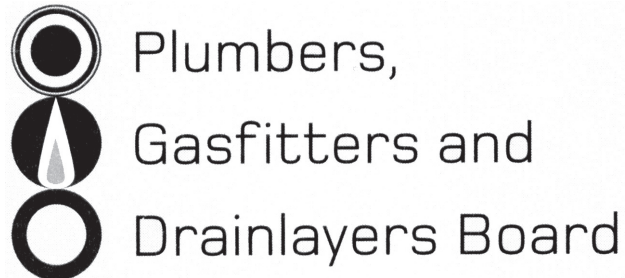


No. 9195



REGISTRATION EXAMINATION, JUNE 2021
CERTIFYING PLUMBER

ANSWER SCHEDULE

ANSWER 1

Diagram to show the following:

Holding tank vented.	(1 mark)
Vent terminates outside the building.	(1 mark)
Vent diameter 50 mm.	(1 mark)
Max height 100 mm below WHB inlet to tank.	(1 mark)
Pump inlet located in lowest point in tank.	(1 mark)
Pump outlet min 25 mm diameter.	(1 mark)
Valve train and pump correct.	(1 mark)
Outlet connected to stack or drain at correct location.	(1 mark)

Total 8 marks

ANSWER 2

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 3

Relief vent for section of stack below offset connected at correct levels.	(1 mark)
Relief vent for section of stack above offset connected at correct levels.	(1 mark)
Other vent pipes fitted where required and connected at correct places.	(4 marks)
Vents sized correctly.	(3 marks)

NOTE:

System does not operate: 0 marks

System operates but is not fully vented modified: maximum 2 marks

Total 9 marks

ANSWER 4

(a)

Type	Highest rating	
	Back pressure	Back siphonage
Reduced pressure zone device	High	High
Double check valve assembly	Medium	Medium
Pressure type vacuum breaker	Not rated	High
Atmospheric vacuum breaker	Not rated	High

(Each type 1 mark, both ratings for each type 1 mark)
Total 8 marks

ANSWER 5

- (a) (i)
- $$N = \sqrt{\left(\frac{40}{15}\right)^5} \quad (1/2 \text{ mark})$$
- $$N = \sqrt{2.66^5}$$
- $$N = \sqrt{133.17} \quad (1 1/2 \text{ marks})$$
- $$N = 11.53 \quad (1 \text{ mark})$$
- (11 units) (3 marks)
- (ii) Installing a UV filter on a tempered ring main. (1 mark)
Running the ring main with untempered water and tempering at each lateral. (1 mark)
- (iii) After the last branch off the ring main in the return line. (1 mark)
- (b) (i) Drawing to show cylinders connected in parallel with correct valves. (2 marks)
- (ii) Better flow rates achievable.
Both cylinders share the work evenly.
Any unit can be isolated for maintenance with disrupting supply. (3 marks)
- (c) Installed to last 50 years.
Not embedded in concrete (sleeved or wrapped to allow for expansion/contraction OR surrounded by suitable bedding/backfill material).
Insulated (to prevent heat loss).
Tested before concealing.
G12: 1500 kPa – 15 minutes
AS/NZS3500: 1500 kPa – 30 minutes. (4 marks)

Total 15 marks

ANSWER 6

Pipe section	Number of clips
A – B (25 mm)	11
B – C (20 mm)	13
C – D (15 mm)	4
C – E (15 mm)	17
B – F (20 mm)	12
F – G (15 mm)	17
F – H (15 mm)	16

(1 mark each)
Total 7 marks

ANSWER 7

Any THREE (1 mark each)

- Fire collar.
- Fire wrap.
- Fire sleeve.
- Fire pillow.
- Fire proof Mastic sealant.
- Fire-proof foam.

Total 3 marks

ANSWER 8

(a) Amount = $2500 \times 50 = 125,000$ mg (1 mark)
= 125 g (1 mark)

(b) Where water in the tank contains high levels of organic material. (1 mark)

Total 3 marks

ANSWER 9

(a) Any FIVE (1 mark each)

- The site the meeting is regarding.
- The supervisor for the site.
- The date of the meeting.
- Names and signatures of those people attending the meeting.
- Site specific details that were discussed.
- Action required to be taken.
- Person responsible for taking action.

(5 marks)

(b) Any FIVE (1 mark each)

- Location of the accident.
- Date and time of the accident.
- Name of person who had the accident.
- Description of the accident.
- Type of injury (if any) received.
- Action taken with regards to the accident – first aid, corrective action, review of hazard register.
- Did the accident result in serious harm?
- Has MBIE been advised of the accident if required?
- Has an investigation been undertaken?
- Date investigation outcomes were discussed at a safety meeting to advise other staff members of risk and action taken.

(5 marks)

Total 10 marks

ANSWER 10

(a) Any FOUR (1 mark each)

- Operation of machinery.
- How to adjust guards.
- PPE to be worn.
- Method of isolation – turning on and off.
- Pre-use inspections.
- Procedure to be followed in emergency.

(4 marks)

(b) Any TWO (1 mark each)

- Ensure that protective equipment is provided, accessible and used.
- Monitor employees' exposure to the hazard.
- Seek the consent of employees to monitor their health.

(2 marks)

- (c) (i) Any FOUR ($\frac{1}{2}$ mark each)
- Lead.
 - Adhesives/sealants.
 - Solvents.
 - Solder.
 - Flux
 - Concrete.
- (2 marks)
- (ii) Material safety data sheet. (1 mark)
- (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.
- (3 marks)
- Total 12 marks**

SECTION B

1. C 2 × the inlet diameter or 25 mm whichever is greater.
2. E The bypass must provide the same protection as the main.
3. B 3
4. B The latitude of the installation.
5. D The solar panel.
6. A A solar water heating system that feeds an electric storage water cylinder.
7. C One heat source can be used for both potable and non-potable hot water supplies.
8. A Purple.
9. C 45°C.
10. C 100 mm.
11. B 1:40.
12. D Every cylinder in the installation.
13. A 4.
14. B The building owner.
15. D 15 years.
16. D 1500 kPa.

Total 16 marks

