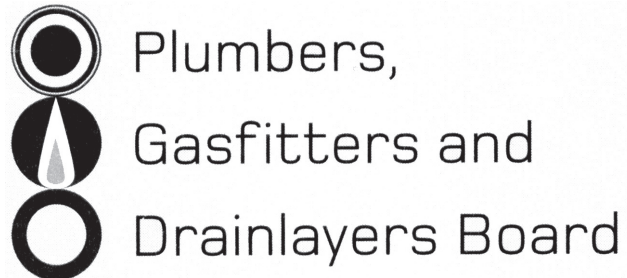


No. 9195



REGISTRATION EXAMINATION, NOVEMBER 2016
CERTIFYING PLUMBER

ANSWER SCHEDULE

ANSWER 1

Location	Fire Collar required
A	240.240.240
B	180.180.180
C	120.120.120
D	240.240.240

Total 4 marks

ANSWER 2

Fixtures discharging to ORG

Ensuite basin to ORG 40 mm needs vent.

Ensuite basin to ORG 65 mm no vent req.

Laundry to ORG 40 mm needs vent.

Laundry to ORG 65 mm no vent req.

Venting

Main vent 50 mm diameter.

Main vent location.

Correct number of vents.

Fixtures to FWG if used

FWG receiving fixtures from another room.

FWG receiving waste from kitchen sink/toilet.

Fixture discharge pipes to FWG incorrect size.

Main and branches

Main drain not 100 mm.

Branch drains not 65 mm.

Ensuite toilet to outside no vent.

Ensuite toilet to main line over 10 m needs vent (50 mm).

Drainage plan altered

Missed fixtures

Total 9 marks

ANSWER 3

- (a) When the developed length of the waste pipe from the crown of the water trap to the gully trap is greater than 3.5 m.
When the waste pipe discharges to a combined waste pipe.
Where any 32 mm discharge pipe to a gully trap has a vertical drop of greater than 1.5 m.
All fixtures connected to a stack, except the highest connection (for lengths refer to table).
(4 marks)
- (b) (i) When the stack receives discharge from three levels. (1 mark)
- (ii) 40 mm. (1 mark)
- (iii) Connect to the bottom of the discharge stack at no less than 300 mm below the lowest discharge pipe served.
Connect at an angle of 45°. (2 marks)
- (iv) A relief vent is fitted to a waste stack to balance the air pressure in the stack, which prevents water trap seal loss.
To allow an increase in the number of discharge units. (2 marks)
- (c) (i) 1:80 or 1.25% (1 mark)
- (ii) Ensures that any condensation or liquids will drain back into the sanitary plumbing and drainage system.
Ensures that foul gases will travel upwards. (2 marks)

Total 13 marks

ANSWER 4

The vent from basin discharging to the gully is inter-connected with a vent from the drain.
Foul gases from the drain could travel through the vent system and discharge at low level through the outfall of the basin waste pipe, causing a nuisance.

Total 2 marks

ANSWER 5

Vent terminates outside the building	(1 mark)
Storage tank vented	(1 mark)
Vent 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 6

- (a) Volume = $\pi \times R^2 \times L$
- Section A: Volume = $\pi \times 0.016^2 \times 3 = 0.00242 \text{ m}^3$ (½ mark)
- Section B: Volume = $\pi \times 0.0125^2 \times 4 = 0.00196 \text{ m}^3$ (½ mark)
- Section C: Volume = $\pi \times 0.010^2 \times 4 = 0.00126 \text{ m}^3$ (½ mark)
- Section D: Volume = $\pi \times 0.0075^2 \times 3 = 0.000530 \text{ m}^3$ (½ mark)
- Section E: Volume = $\pi \times 0.0075^2 \times 7 = 0.00124 \text{ m}^3$ (½ mark)
- Total volume = 0.00741 m^3 or 7.41 litres (1 ½ mark) (4 marks)
- (b) No. of grams = $1500 \times 0.05 = 75$ grams (2 marks)
- (c) The water contains organic matter or has a chemical composition that requires a greater dosage. (1 mark)

Total 7 marks

ANSWER 7

- (a) Any ONE (1 mark)
- Replacing an open-vented water storage heater with a valve-vented water storage heater
- The cylinder is being relocated (1 mark)
- (b) Any ONE (1 mark)
- The replacement cylinder is a comparable open-vented water storage heater and is fixed in the same position, and uses the same pipework, as the replaced water storage heater
- The cylinder is being replaced with a gas-fired continuous flow water heater (and the wetback is to be disconnected) (1 mark)
- (c) 12 months. (1 mark)

Total 3 marks

ANSWER 8

(a) Any THREE (1 mark each)

Oxygen level.

Presence of toxic or flammable gases.

Temperature.

Presence of dust.

(3 marks)

(b) Any FOUR (1 mark each)

Two-way radio.

Tripod and harness.

Length of rope.

Phone for contacting emergency services.

Gas monitoring equipment.

Timer.

Record of entry and exit.

Total 7 marks

ANSWER 9

Location number	Hazard rating	Device type
3	M	DCVA
12	H	RPZ
14	H	RPZ
15	H	RPZ
16	M	DCVA

Total 15 marks

ANSWER 10

(a)

Action	Minimise	Eliminate
Wearing safety glasses	✓	
Replacing a noisy machine		✓
Completing work usually performed at heights on ground level		✓
Providing screens around an area where welding is taking place	✓	
Using earmuffs or ear plugs	✓	
Fitting safety guards to machinery	✓	
Train staff in correct use of equipment	✓	
Using edge protection when working at heights	✓	

(4 marks)

- (b) Any SIX (½ mark each)
- (i) • Any of the following injuries or illnesses that require the person to have immediate treatment (other than first aid).
- The amputation of any part of his or her body.
 - A serious head injury.
 - A serious eye injury.
 - A serious burn.
 - The separation of his or her skin from an underlying tissue (such as degloving or scalping).
 - A spinal injury.
 - The loss of a bodily function.
 - Serious lacerations.
 - An injury or illness that requires, or would usually require, the person to be admitted to a hospital for immediate treatment.
 - An injury or illness that requires, or would usually require, the person to have medical treatment within 48 hours of exposure to a substance.
 - Any serious infection. (3 marks)
- (ii) WorkSafe New Zealand. (1 mark)
- (iii) Must be given by the fastest possible means in the circumstances. (1 mark)
- (iv) Any THREE (1 mark each)
- To assist an injured person.
 - To remove a deceased person.
 - It is essential to make the site safe or to minimise the risk of a further notifiable event.
 - An action that is done by, or under the direction of, a constable acting in execution of his or her duties.
 - An action for which an inspector or the regulator has given permission. (3 marks)
- Total 12 marks**

ANSWER 11

Valve train on cold inlet.
 Cold feed into bottom of HWC.
 Feed from HWC to CFWH from low level.
 Pump included in installation.
 Pump located correctly.
 Hot return to HWC at higher level.
 Tempering valve installed with mixed feed to outlets.
 TPR valve installed on HWC.
 System must operate.

Total 8 marks

SECTION B

1. C 45°C.
2. D 1500 kPa.
3. B The latitude of the installation.
4. D The solar panel.
5. C An electric element that raises the water temperature slightly to start a thermo-syphon current.
6. C One heat source can be used for both potable and non-potable hot water supplies.
7. B A pump.
8. A When the bypass has the identical rating as the device being bypassed.
9. E When installed in a toxic environment.
10. D The building owner.
11. D 15 years.
12. E 50 years.

Total 12 marks