No. 9195

Plumbers, Gasfitters and Drainlayers Board

REGISTRATION EXAMINATION, JUNE 2017

CERTIFYING PLUMBER

ANSWER SCHEDULE

ANSWER 1

Fixtures discharging to ORG
Kitchen sink to ORG 40 mm needs vent
Kitchen sink to ORG 65 mm no vent required
Shower to ORG 40 mm no vent required
Basin to ORG 40 mm needs vent
Basin sink to ORG 65 mm no vent required

Venting
Main vent 50 mm diameter
Main vent location
Correct number of vents
Kitchen to main drain 65 mm no vent required

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
FWG not charged

Main and branches
Main drain not 100 mm
Branch drains not 65 mm

Completely new drainage plan	-9
Extra gully added at head of system	-2
Missed fixtures	-1 per fixture
	Total 9 marks

ANSWER 2

(a) To stop the valve being submerged in contaminated liquids. If test points are not shut fully there is potential for cross connection to occur.

(1 mark)

(b) (i) 300 mm. (1 mark)

(ii) Point indicated at outlet of relief valve at the bottom of the RPZ and the ground. (1 mark)

(c) (i) 150 mm. (1 mark)

(ii) Points indicated at the highest outlet to the lowest part of the valve body. (1 mark)

(d)

Type of backflow protection	High hazard rating	
	Back-pressure	Back-siphonage
Air gap	✔	✔
Reduced pressure zone device		✔
Double check valve		
Pressure type vacuum breaker		✔
Atmospheric vacuum breaker	✔	✔

(5 marks)
Total 10 marks

ANSWER 3

Legend	Size	Length	Vent required Y/N
Laundry tub	40 mm trap and waste	1.5 m	N
Laundry FWG	50 mm outlet	13.5 m	Y
Shower	Untrapped 40 mm waste	1.3 m	N
Bidet	Untrapped 40 mm waste	0.4 m	Y
Bathroom WC pan	100 mm outlet and waste	10.9 m	Y OR N (1 OF 5)
Bathroom basin	40 mm trap and waste	2.1 m	Y OR N
Bathroom FWG	65 mm outlet	2 m	Y OR N (1 OF 5)
Powder room WC pan	100 mm outlet and waste	1.9 m	Y OR N (1 OF 5)
Powder room basin	40 mm trap and 65 mm waste	1.4 m	Y OR N (1 of 5)
Kitchen sink	40 mm trap and 65 mm waste	8.4 m	Y

Total 10 marks

ANSWER 4

(a) (i) Any FOUR (½ mark each)
Lead
Adhesives/sealants
Solvents
Solder
Flux (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)

(b) Any FIVE (1 mark each)
Specified training workers should have before carrying out work at heights.
PPE gear to be used when working at heights.
Individual site assessment procedure for each working at height location.
Supervision requirements (buddy system) for machinery used to access heights.
Emergency procedures should an accident or incident occur.
Procedure for people who do not follow the policy requirements. (5 marks)

(c) (i) Any THREE (1 mark each)
Underground services - Guide for safety with underground services
Height - Best practice guidelines for working at height in New Zealand
Roofs - Best practice guidelines for working on roofs
Excavation and shafts for foundations
Hazardous substances
Noise in the workplace
Powder-actuated hand-held fastening tools
Power-operated elevating work platforms
Manual handling - Code of practice for manual handling (3 marks)

(ii) The may be used as evidence of best practice if any legal action was to be taken in the event of an accident or incident occurring.
(1 mark)

Total 15 marks

ANSWER 5

(a) Drawing to show:

Cold water feed has correct valve train	(2 marks)
Relief valve fitted to HWC	(1 mark)
Pump installed on system	(1 mark)
Pump in correct location	(1 mark)
Non return valve location	(1 mark)
Tempering valves to be installed correctly	(2 marks)
UV steriliser installed	(-1 mark)
Ring main connected correctly to HWC	(1 mark)

(9 marks)

(b) (i) $N = \sqrt{\left(\frac{25}{15}\right)^5}$

$= \sqrt{1.6667^5}$

$= 3.59$

(ii) No (3 marks)

Total 13 marks

ANSWER 6

(a) 4.84 m.

(b) 4.84 + 3.60 + 2.20 = 10.64 m.

(c) 3.60 + 2.20 + 0.53 + 0.75 = 7.08 m.

(d) 3.60 + 2.20 + 0.53 = 6.33 m.

(e) 1.20 + 4.84 + 3.60 + 2.20 + 0.53 + 0.75 = 13.12 m.

Total 5 marks

ANSWER 7

(a)

Design number of males	Design number of females
750 (1 mark)	875 (1 mark)

	Basins	WC Pans	Urinals
Male	5.11 (2 marks)	8.7 (2 marks)	4 (2 marks)
Female	5.225 (2 marks)	15.75 (2 marks)	

(12 marks)

(b) Two (1 mark)

Total 13 marks

ANSWER 8

(a) (i) A 75 mm.
B 50 mm.
C 100 mm. (3 marks)

(ii) Cross at not less than 45°.
Be marked along its length for 1 m either side with tape 150 mm above the water service.
(2 marks)

(b) 500 mm. (1 mark)

(c) (i) 25 mm. (1 mark)

(ii) 25 mm. (1 mark)

(iii) 100 mm. (1 mark)

Total 9 marks

ANSWER 9

The isolating valve on the cold inlet side of the hot water cylinder is turned on. This allows the cold water to flow into the cylinder which displaces the hot water. The hot water is discharged through a spout connected to the outlet of the cylinder.

This spout must remain open at all times to provide for the release of pressure when the cylinder is in a heating phase.

Total 4 marks

SECTION B

1. C Health and Safety at Work Act
2. B To prevent trap seal loss.
3. A When the discharge from connected fixtures is expected to be foamy.
4. A The sum of the unit ratings of the fixtures discharging into the floor waste gully.
5. C 27
6. D 125
7. E Slop hoppers.
8. A A urinal.
9. E 50 years.
10. D 15 years.
11. B 12 months.
12. D 3 months.

Total 12 marks