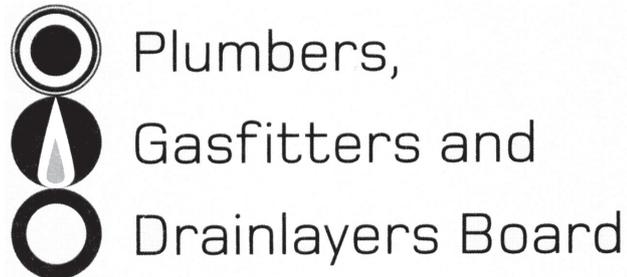


No. 9195



REGISTRATION EXAMINATION, NOVEMBER 2014  
**CERTIFYING PLUMBER**

**ANSWER SCHEDULE**



## ANSWER 1

(a) Any TWO, 1 mark each:

- Bracing plasterboard.
- Sound-proofing plasterboard.
- Fire-rated plasterboard.

(2 marks)

(b) Any TWO, 1 mark each:

- Colour of the board.
- Labels/stamping.
- Thickness.

(2 marks)

**Total 4 marks**

## ANSWER 2

(a) Normative means that this section of the standard **MUST** be complied with.

(1 mark)

(b) Informative sections give information about how a job could be completed to comply with the standard; however other options are available.

(1 mark)

**Total 2 marks**

## ANSWER 3

Hazard Register		
Hazard	Management solution	Eliminate, isolate, minimise
Dust falling from above	Wear eye protection and a face mask	M
Working from a ladder – falling from height	Prefabricate pipework at floor level	E
Connecting discharge pipes to existing foul water pipework	Wear gloves and disinfect tools on completion	M
Tripping hazard from tools and pipe	Keep tools and pipe away from the work area unless in use	I
Brazing copper pipe	Use mechanical jointing methods	E
Solvent cement for installing uPVC pipe	Use compression fittings	E

Where other solutions as given, E,I,M to match the solution.

**Total 6 marks**

## ANSWER 4

(a) Any THREE, ½ mark each:

- Spouting and roof free from rust.
- Spouting and roof free from flaking paint.
- No trees over hanging roof and spouting.
- Move TV aerial if located on roof to help prevent birds perching.
- Location of chimneys/flues that may discharge soot.
- Lead flashings or lead based paint on the roof.
- Bitumen based roofing materials.
- Friable asbestos roofing products.
- Any exposed treated timber that may leech into the rainwater.
- Any possible pollution from surrounding area.

(3 marks)

(b) Soil fixtures.

Clothes washing machine.

Hose taps for irrigation.

(3 marks)

(c) Diagram, 1 mark

Correctly located components, ½ mark each:

- Isolation valves.
- Non return valves/foot valves where required.
- Pressure gauges.
- Stable base.
- Vibration eliminators.
- Flanges.

(4 marks)

**Total 10 marks**

## ANSWER 5

(a) Following locations indicated, ½ mark each:

- Supply to preparation room.
- Supply to boiler room.
- Supply to hairdresser salon.
- Supply to swimming school.
- Supply to café.
- Supply to fire sprinkler.

(3 marks)

(b)

Location	Potential source of contamination	Method of protection
Fire sprinkler connection	Fire sprinkler ring main, stagnant water	Double check valve
Women's toilet and men's toilet	WC pans, basins	Air gap
Café	Carbonated drink dispenser Coffee machine Commercial Dishwasher	Double check valve Double check valve RPZ
Funeral home preparation room	Embalming equipment	RPZ
Funeral home lunch room	Kitchen sink	Air gap
Boiler room	Boiler	RPZ
Hairdresser	Hairdresser sink	RPZ
Swimming school pool	Swimming pool	Double check valve
Swimming school WC	Toilet pan, basin	Air gap

(Each line 1 mark, 9 marks)

**Total 12 marks**

## ANSWER 6

Candidate starts with 9 marks.

Pipework travelling through/under footings unnecessarily	minus 1 mark
Fixtures on ground floor missed	minus 1 mark each
Stack to top floor missed	minus 3 marks
Stack exiting slab in middle of a room	minus 1 mark
If fixture discharges to ORG, incorrect size	minus 1 mark
Branch drains incorrect size	minus 1 mark each
If FWG used and incorrect	minus 2 marks
Incorrect main drain size	minus 1 mark
Incorrect venting	minus 1 mark
Drainage plan altered	minus 9 marks

**Total 9 marks**

**ANSWER 7**

Index length of installation	Pressure drop
55 (2 marks)	37 (1 mark)

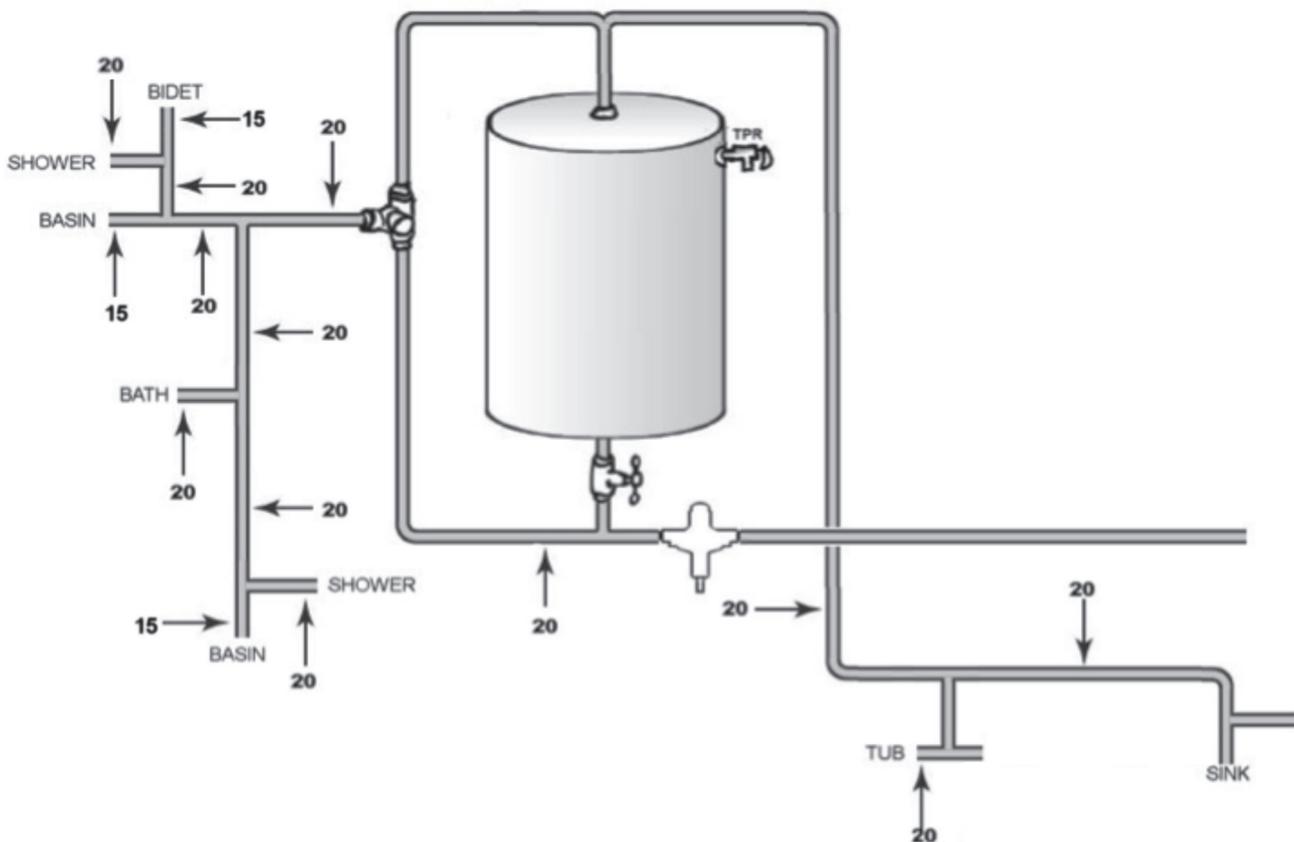
Pipe Section	Probable simultaneous demand (L/s)	Nominal pipe size (DN)
A – B	1.17	25
B – C	0.70	25
C – D	0.48	20
B – E	0.88	25
E – F	0.48	20
E – G	0.70	25
G – H	0.48	20

(1 mark each)

(1 mark each)

**Total 17 marks**

**ANSWER 8**



(½ mark each)

**Total 9 marks**

## ANSWER 9

Lower stack vent connected correctly	(1 mark)
LSRV terminated correctly	(1 mark)
Upper stack relief vent connected correctly	(1 mark)
USRV terminated correctly	(1 mark)
Branch vent pipes installed as required	(3 marks)
Branch and relief vents sized correctly	(3 marks)
Unnecessary cross relief vents	(minus 2 marks)
	<b>Total 10 marks</b>

## ANSWER 10

Name: Thermosiphon (1 mark)

Design aspects: Any TWO, 1 mark each:

- Base of solar store must be above the top of the collector – to prevent back siphoning.
- Circulator pipes must be sized correctly.
- Circulator pipes must be on correct gradient.
- Vented with expansion (top up) tank.
- Pipes must be insulated.

Name: Pump (1 mark)

Design aspects: Any TWO, 1 mark each:

- Have a non-return valve fitted – to prevent back siphoning.
- Have a suitable collector for forced circulation systems.
- Have the correct pump type fitted (to return line).
- Have control devices (temperature sensors) fitted to turn pump on and off as required.

**Total 6 marks**

## SECTION B

- 1 B The latitude of the installation.
- 2 D The solar panel.
- 3 A A solar water heating system that feeds an electric storage water cylinder.
- 4 E A temperature pressure relief valve.
- 5 D 1500 kPa.
- 6 C 3.500 metres.
- 7 A When the discharge from connected fixtures is expected to be foamy.
- 8 E 50 years.
- 9 D 625 litres.
- 10 E A urinal.
- 11 B 3 metres.
- 12 C 15 minutes.
- 13 D 3 months.
- 14 B 1 April.
- 15 E 120 mm
- 16 B 1:40

**Total 16 marks**