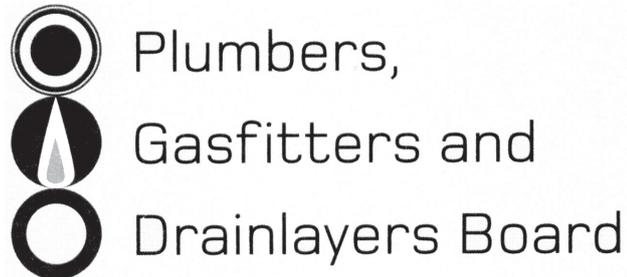


No. 9192



REGISTRATION EXAMINATION, JUNE 2015
LICENSED PLUMBER

ANSWER SCHEDULE

ANSWER 1

- (a) E Request that a different jointing method be used.
- I Install a hoist or other lifting machinery to transport kit into van.
- M Wear steel toe capped boots OR have two people sharing the load while lifting
OR use correct lifting techniques.

(3 marks)

- (b) Any SIX (½ mark each)
- Tying ladder.
 - Correct angle.
 - Having someone foot the ladder.
 - Keeping hands free (not carrying tools).
 - Use three points of contact.
 - Ensure ladder is properly maintained.
 - Ensure ladder extends 1 m above roof line.

(3 marks)

Total 6 marks

ANSWER 2

- (a) (i) Pressure vacuum breaker.
- (ii) Double check valve.
- (iii) Atmospheric vacuum breaker.
- (iv) Reduced pressure zone device.

(4 marks)

- (b) (i) Back pressure.
- (ii) Back siphonage.

(2 marks)

Total 6 marks

ANSWER 3

$$\frac{360 \times 4.2 \times 59 \times 100}{21600 \times 95} = 4.347 \text{ hours} = 4 \text{ hours and 21 minutes}$$

4:00pm finish time – 4 hr 21 min = 11:39 start time

- Convert kW to kJ (2 mark)
- Calculate temp difference (1 mark)
- Get answer (1 mark)
- Convert answer to hours and minutes (1 mark)
- Calculate correct start time (1 mark)

Total 6 marks

ANSWER 4

A	Discharge stack vent
B	Fixture vent
C	Branch vent
D	Relief vent

Total 4 marks

ANSWER 5

- Correct scale. (1 mark)
Correct orientation – sides to front. (1 mark)
Correct location of overflow. (1 mark)
Correct location and number of laps. (1 mark)
Fold lines indicated. (1 mark)

Total 5 marks

ANSWER 6

- (a) Two adjacent waste fixtures of the same type, which have their outlets connected to the same fixture trap. (1 mark)
- (b) Any THREE (1 mark each)
- Domestic kitchen sinks.
 - Laundry tubs.
 - Basins.
 - Showers.
 - Ablution troughs. (3 marks)
- (c) Garden hose tap.
WC cistern. (2 marks)

Total 6 marks

ANSWER 7

- (a) Steel, galvanised (unpainted).
Zinc. (2 marks)
- (b) Any TWO (1 mark each)
- Steel, galvanised (unpainted).
Zinc.
Zinc-aluminium-magnesium (combinations), (unpainted). (2 marks)

- (c) Any FOUR (½ mark each)
- Ductility
 - Elasticity
 - Expansion/Contraction
 - Fatigue
 - Fusibility
 - Hardness
 - Tenacity
 - Lustre
 - Malleability
 - Relative Density (2 marks)
- (d) Any THREE (1 mark each)
- Wind speed.
 - Penetration size.
 - Roof profile.
 - Distance to ridge. (3 marks)

Total 9 marks

ANSWER 8

- (a) Ceiling tank. (1 mark)
- Open vent. (1 mark)
- Heat exchange coil. (1 mark) (3 marks)
- (b) Any FOUR (½ mark each)
- Electricity.
 - Gas.
 - Solar.
 - Solid fuel.
 - Fuel oil.
 - Geothermal. (2 marks)
- (c) Convection.
- Conduction.
- Radiation. (3 marks)
- (d) Conduction – must be in physical contact, transfers molecule to molecule.
- Convection – Heat causing different densities and creating circulating currents.
- Radiation – travels in straight lines, heats solid objects, can travel through a vacuum. (2 marks)
- (e) Anode – Sacrificial Anodes are highly active metals that are used to prevent a less active material surface from corroding. Sacrificial Anodes are created from a metal alloy with a more negative electrochemical potential than the other metal it will be used to protect. The sacrificial anode will be consumed in place of the metal it is protecting, which is why it is referred to as a “sacrificial” anode.
- Seismic restraint – Strapping or support to prevent movement during an earthquake.
- Un-tempered – Hot water directly from the outlet of a hot water cylinder.
- Continuous flow – A hot water system that heats water on demand as it flows through the appliance. (4 marks)

Total 14 marks

ANSWER 9

(a) Benders.
Bending spring. (1 mark)

(b) (i) Any THREE (½ mark each)
Folders/break/finger folders.
Sheet metal pliers.
Jenny.
Dolly and hammer/mallet.
Press break.

(ii) Any THREE (½ mark each)
Seams.
Rivets.
Nuts and bolts.
Spot welder.
Solder.

(3 marks)

Total 4 marks

ANSWER 10

(a) (i) A piston or diaphragm moving a set amount of water with each stroke – displacement. (2 marks)

(ii) Water enters the pump through the suction eye in the centre, a series of vanes on the impellor spin and throw water towards the outlet increasing the pressure – non displacement. (2 marks)

(b) Suction Head.
Delivery Pipe.
Pressure vessel.
Pump.
Filter.
Non – return valve. (3 marks)

Total 7 marks

ANSWER 11

- (a) Copper. (1 mark)
- (b) Any ONE (1 mark)
To allow thermosiphon to circulate water through the system.
To allow air to be vented from the system. (1 mark)
- (c) Due to the uncontrolled heat source and the potential of an explosion. (2 marks)
- (d) Open vent. (1 mark)
- (e) (i) Joint must be riveted, be sealed, have lap correct. (1 mark each) (3 marks)
(ii) To prevent fluids/creosote from running down the outside of the flue. (1 mark)

Total 9 marks

ANSWER 12

Any FOUR (1 mark each)

- Basin.
- Bath.
- Shower.
- Laundry tub.
- Bidet.
- Cleaner's sink.
- Bar sink.
- Drinking fountain.
- Dental sink.

Total 4 marks

ANSWER 13

Any TEN (½ mark each)

- | | | |
|---------------------------------|---|--|
| Butylene tees | 2 | |
| Butylene wingbacks - male | 2 | or Butylene wingbacks female + threaded brass tube |
| Butylene elbow | 1 | |
| Butylene pipe | | |
| Hemp or tape | | |
| 40 mm plug and waste | | |
| 40 mm washing machine inlet tee | | |
| 40 mm trap | | |
| 40 mm 88° bend | 2 | 1 for side pipe one for waste pipe |
| 40 mm DWV pipe | | |
| 40 mm flange | | |

Total 5 marks

ANSWER 14

- (a) Hard water. (1 mark)
- (b) House supplied with water from a bore. (1 mark)
- (c) Complaint – shower heads blocking.
Remedy – install water softener.
OR
Complaint – water doesn't lather.
Remedy – use a softener.
Complaint (1 mark), remedy (1 mark) (2 marks)

Total 4 marks

SECTION B

1. C Pipework full of water with an outlet open.
2. B Pipework full of water with all outlets closed.
3. E The meters per second water travels through pipework.
4. A The litres per second water travels through pipework.
5. D Water wearing away the internal surface of pipework.
6. E 55°C.
7. C At the basin tap outlet.
8. B Foul gases entering a dwelling from the drainage system.
9. C Tundish.
10. D Oscillation.
11. B Evaporation.

Total 11 marks