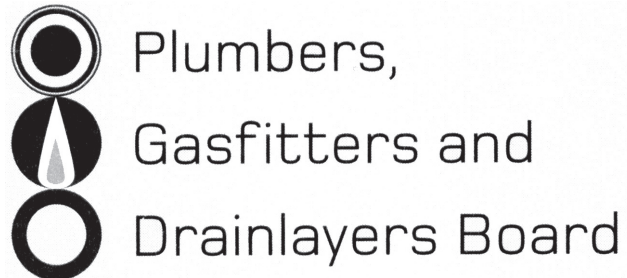


No. 9193



REGISTRATION EXAMINATION, JUNE 2014
LICENSED GASFITTER

ANSWER SCHEDULE

ANSWER 1

- (a)
- The button is manually depressed.
 - A cam causes a spring-loaded striker to impact on a crystal.
 - Striking the crystal generates a high voltage current.
 - The voltage is then discharged down a high tension cable.
 - The spark leaps across a gap that is positioned in a stream of gas.
 - This causes ignition of the gas.
- (4 marks)
- (b) Any FOUR (½ mark each)
- Manufacturer's or supplier's name or trademark.
 - Appliance type.
 - Appliance model number.
 - Type of gas for which appliance is suitable.
 - Gas pressure at which the appliance is designed to operate.
 - Input of appliance.
- (2 marks)

Total 6 marks

ANSWER 2

(a)

Description	Label	Description	Label
Aeration adjustment	J	Pilot adjustment	F
Thermocouple	K	Burner regulator adjustment	D
Pilot head	L	Thermostat control	G
Pilot Tube	H	Energy cut out	A
Thermal fuse	I	Thermostat probe	B
TEFFD button	C	Gas valve	E

(6 marks)

- (b) Any FIVE (1 mark each)
- Leakage/Installation test.
 - Soapy water leak check of any affected connections.
 - Set/check operating pressure.
 - Check aeration/burner operation.
 - Set pilot flame size.
 - Water tightness.
 - Checking safety devices.
- (5 marks)

(c) Any SEVEN (1 mark each)

- Thermostat set too high.
- Relief valve emptying water.
- Hot water pipework leak.
- Gas leakage.
- Calcium deposit build up in tank.
- Baffle has disintegrated.
- Burner incorrectly positioned.
- Blocked burner.
- Incorrectly set gas pressure.
- Primary air restricted.

(7 marks)

Total 18 marks

ANSWER 3

$$\text{Vol of gas} = \frac{24}{95} = 0.253 \text{ m}^3$$

(1 mark)

$$\text{Vol of air} = 0.253 \times 25 = 6.325 \text{ m}^3$$

(1 mark)

$$\text{Vol of oxygen} = 20\% \text{ of } 6.325 = 1.27 \text{ m}^3$$

(1 mark)

Total 3 marks

ANSWER 4

(a) Any FOUR (1 mark each)

- No leaks.
- Continual fall.
- Supported well.
- Terminate where it will not damage or annoy.
- Terminate where can be seen.
- Appropriate material.

(4 marks)

(b) To rinse condensate from the heat exchange because the condensate has corrosive properties.

(2 marks)

Total 6 marks

ANSWER 5

- (a) • Fall arrest harness.
• Airbags/Soft landing system.
• Safety net. (3 marks)
- (b) • Eliminate.
• Isolate.
• Minimise. (1 mark)
- (c) Any TWO (1 mark each)
• Total restraint systems.
• Fall arrest systems.
• Work positioning systems.
• Industrial rope access systems.
• Safety lines, lifelines, prescribed or proprietary (engineered) systems. (2 marks)

Total 6 marks

ANSWER 6

- (a) An integral part of the standard. (1 mark)
- (b) For information and guidance. (1 mark)

Total 2 marks

ANSWER 7

- (a) A current is passed through the thermistor. A controller measures the resistance.
As temperature increases so does the resistance of the thermistor. (3 marks)
- (b) Vapour or liquid is in a bulb, probe or phial. When heated the vapour expands increasing the pressure within the phial and down a small capillary tube to expand a bellows pushing open a gas valve. (3 marks)
- (c) A steel rod is fixed at one end inside a copper or brass tube. The copper tube expands as it warms growing longer. The steel rod does not expand at the same rate as the copper tube and as it is fixed at one end to the copper it moves up and down the tube as the temperature changes. The rod was holding a valve open and when it moves away it allows the valve to close. (3 marks)

Total 9 marks

ANSWER 8

- (a)
- Leakage test. 3 kPa (2 marks)
 - Pipework test on new pipework. 7 kPa (2 marks)
 - Installation or leakage test. 3 kPa (2 marks)
 - Final connection test. 3 kPa (2 marks) (8 marks)
- (b)
- 7.5 kPa (1 mark)
- (c)
- Retest the pipework at higher pressure.
 - Check the appliance regulators are rated for the pressure increase.
 - Check the appliance operating pressures/re-commission.

(3 marks)

Total 12 marks

ANSWER 9

- (a) The cylinder compartment must be separated from the general storage area by a vertical divider extending from the floor and constructed as to make a seal with the compartment lid when closed. (2 marks)
- (b) It is applied to the outside of an LPG locker or compartment to indicate the presence of LPG cylinders. (1 mark)

Total 3 marks

QUESTION 10

(a)

Description	No.	Description	No.
Installation pressure test point	12	Drip leg	8
Ullage tube	3	Excess flow device	2
Cylinder change-over lever	5	Cylinder relief	1
Installation pressure adjustment	10	Indicator	6
Drain point	9	Installation overpressure relief	11
Pigtail	4	First stage regulator	7

(6 marks)

- (b) Any THREE (1 mark each)
- POL
 - QCC
 - COSAN/Clip on
 - Camping/ companion/ 3/8" BSP left hand thread
 - CGA555
 - Severt
 - Cadac

(3 marks)

Total 9 marks

QUESTION 11

- Connection pipe on wall at same height as appliance connection point.
- Wall connection point indicated as 150 mm to the side of appliance connection point.
- Flexible hose will not touch the ground when the appliance is pushed into place.
- Flexible hose 1 m – 1.2 m in length.
- Restraint chain 80% of hose length.
- Gas connection points to face downwards.

(1 mark each)

Total 6 marks

QUESTION 12

Item	Name
A	Cowl
B	Support
C	Ceiling Plate
D	Secondary Flue
E	Slip Ring/Clamp
F	Down Draught Diverter
G	Baffle
H	Primary Flue
I	Combustion Chamber
J	Burner

Total 5 marks

QUESTION 13

Vol of trench = $0.4 \text{ m} \times 0.95 \text{ m} \times 15 \text{ m} = 5.7 \text{ m}^3$

(1 mark)

Vol of compaction = 20% of $5.7 \text{ m}^3 = 1.14 \text{ m}^3$

Amount of fill = $5.7 \text{ m}^3 + 1.14 \text{ m}^3 = 6.84 \text{ m}^3$

(1 mark)

Total 2 marks

QUESTION 14

- Minimum character height of 4 mm.
- Affixed to a conspicuous position on or adjacent to the appliance.
- Wording 'WARNING. Ensure ventilation when cooker is in use. Do not use for space heating.'

Total 3 marks

SECTION B

- 1 E Any height.
- 2 E Between 20 and 25 mV.
- 3 D The low flame has not been set correctly.
- 4 A The burner injector size is correct.
- 5 D Fan interlock.
- 6 B Carbon and hydrogen.
- 7 C Worksafe New Zealand.
- 8 E Where it is exposed to sunlight.
- 9 A 50 mm
- 10 C The gasket should be replaced.

Total 10 marks