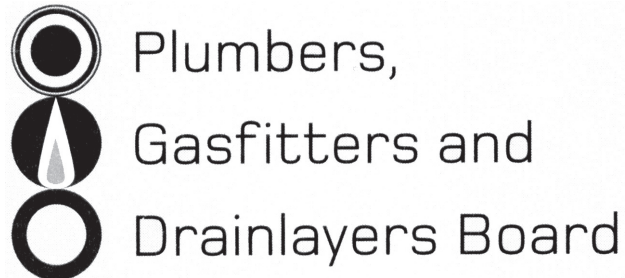


No. 9196



REGISTRATION EXAMINATION, NOVEMBER 2022
CERTIFYING GASFITTER

ANSWER SCHEDULE

ANSWER 1

- (a)
- Leakage test. 3.75 kPa (2 marks)
 - Pipework test on new pipework. 7 kPa (2 marks)
 - Installation or leakage test. 3.75 kPa (2 marks)
 - Final connection test. 3.75 kPa (2 marks)
- (8 marks)

- (b)
- $8 + 9 = 17 \text{ m}$ $17 \times 0.79 = 13.43 \text{ litres}$ (1 mark)
 - $12 + 3 = 15 \text{ m}$ $15 \times 0.28 = 4.2 \text{ litres}$ (1 mark)
 - $13.43 + 4.2 = 17.63 \text{ litres}$ (1 mark)
 - 0.25 kPa (1 mark)
- (4 marks)

Total 12 marks

ANSWER 2

- (a) Any THREE (1 mark each)
- Leakage of gas within the installation is outside the tolerance of a soundness test or is in excess of one-fifth of the lower explosive limit.
 - A pipe containing gas or intended to contain gas is not capped or securely closed to prevent leakage or flow of gas (except where ending in a burner or relief valve).
 - The safety controls are inoperative or the safety controls fail.
 - The flue associated with any gas appliance is incorrectly installed.
 - Installed permanent ventilation required for safe operation has been closed off or is absent.
- (3 marks)
- (b)
- The owner or occupier of the property where the danger exists.
 - WorkSafe New Zealand.
- (1 mark)
- (c) Any TWO (1 mark each)
- Details of the nature of the danger.
 - How and why the gas installation or gas appliance presents an immediate danger to life or property.
 - Any steps that have been taken, or that the person believes must be taken, to minimise or eliminate the danger.

(2 marks)

Total 6 marks

ANSWER 3

- (a) • $101.3 + 10 = 111.3 \text{ kPa}$
• $111.3 \div 101.3 = 1.099 \text{ kPa}$ (1 mark)
• $12.25 \times 1.099 = 13.46 \text{ m}^3$ (1 mark)
• $13.46 \times 40 = 538.4 \text{ MJ/h}$ (2 marks) (4 marks)
- (b) • $538.4 \times 82\% = 441.5 \text{ MJ/h}$ (1 mark)
- (c) • $12.25 \times 10 = 122.5 \text{ m}^3/\text{h}$ (of air) (1 mark)
• $122.5 \times 20\% = 24.50 \text{ m}^3$ (1 mark) (2 marks)
- (d) $0.05 \times 95 \times 3600 \div 75 = 228 \text{ MJ/hr}$ (2 marks)
 $228 \text{ MJ/h} \div 3.6 = 63.33 \text{ kW}$ (2 marks) (4 marks)
- Total 11 marks**

ANSWER 4

- (a) • To provide ventilation.
• To prevent external moisture being accumulated or transferred and causing condensation, fungal growth, or the degradation of building elements. (2 marks)
- (b) Any FOUR (½ mark each):
• Flue size.
• Roof pitch.
• Support available for the flashing.
• Wind speed for area.
• Distance to ridge or bottom of sheet above.
• Material compatibility. (2 marks)
- Total 4 marks**

ANSWER 5

- (a) Any THREE (1 mark each)
• If the ventilation can be direct to outside or not.
• If a low level vent would be subject to flooding.
• Do the vents need to be ducted.
• What are the wind conditions (vents need to be located away from strong winds). (3 marks)
- (b) • $650 \times 3.6 = 2340 \text{ MJ/h}$ (1 mark)
• $2340 \times 300 = 702,000 \text{ mm}^2$ (2 marks) (3 marks)
- Total 6 marks**

ANSWER 6

Pipe Section	Length (m)	Main Run (m)	Gas Flow (MJ/h)	Nominal Size (mm)
A - B	17.5	36.9		50
B - C	1.5			10
B - D	3.2			50
D - E	3.5			32
E - F	1.5			40
F - G	0.6			40
D - H	7.0			32
H - I	3.2			20
H - J	9.2			25

(½ mark)

(½ mark each)

(1 mark each)

Total 14 marks

ANSWER 7

- (a) (i) CoC
Name: Certificate of Compliance
When issued: When a new installation or part of an installation has been completed.
(2 marks)
- (ii) GSC
Name: Gas Safety Certificate
When issued: After work has been completed and connected.
(2 marks)
- (iii) CoV
Name: Certificate of Verification
When issued: When an existing gas installation has been checked for safe supply of gas.
(2 marks)

Total 6 marks

ANSWER 8

- (a) (i) • 200 mm. (1 mark)
- (ii) • From the edge of the burner. (1 mark)
- (b) • 5 mm thick ceramic tiles.
• 5 mm toughened safety glass.
• 0.4 mm sheet metal over 6 mm fibre cement board. (3 marks)
- (c) • 150 mm. (1 mark)

Total 6 marks

ANSWER 9

- (a) • $12 \div 0.4 = 30 \text{ m}^3$ (2 marks)
• $30 \div 3.1 = 9.67 \text{ m}^2$ (1 mark) (3 marks)
- (b) • $7.5 \times 3.6 \times 2.4 = 64.8 \text{ m}^3$
• $64.8 \times 0.36 = 23.33 \text{ MJ/h}$
• $23.33 \div 3.6 = 6.48 \text{ kW}$ (3 marks)
- (c) • $10 \times 3 = 30 \text{ MJ/h}$ (1 mark)

Total 7 marks

ANSWER 10

Appliance	Daily Operating Time	m ³ per week consumption
Natural gas, package burner 80 kW	10 hours	504 (2 marks)
Natural gas, furnace 220,500 BTU	6 hours	219.1 (2 marks)
LPG, cooker 50 Mj/hr	6 hours	23.1 (2 marks)
Natural gas, space heater 62 Mj/hr	3 hours	32.6 (2 marks)

Total 8 marks

ANSWER 11

- (a) • An Approved Practitioner (approved by WorkSafe). (1 mark)
- (b) • Outside the cabin attached to the side of the chassis. (2 marks)
- (c) • Only run whole lengths and ensure all joints are easily accessible. (2 marks)
- (d) Any TWO (1 mark each)
- When new appliances are installed.
 - When work has been performed on an installation or appliance which may alter the performance or operation of an appliance.
 - Following a shutdown of an installation when gas supply is restored.
- (e) • A new installation in a caravan which is not intended for sleeping, including maintenance. (1 mark)
- (f) • Ventilation a minimum of 500 mm² of the void is required. (2 marks)

Total 10 marks

SECTION B

1. D 4000 mm².
2. E 25%.
3. D Two 15 kg cylinders.
4. E 14.0 kPa.
5. C 500 mm.
6. B 0.2 MJ/h/m³.
7. B 600 mm.
8. A 19 mm.
9. D 450 mm.
10. B NZS 4219.

Total 10 marks

