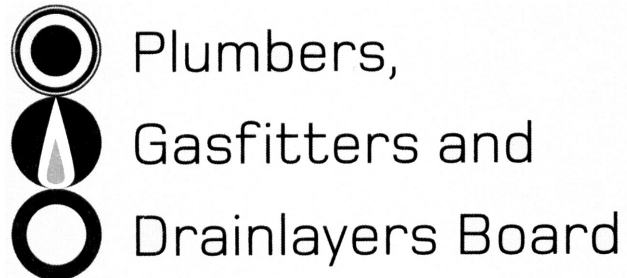


No. 9196



REGISTRATION EXAMINATION, JUNE 2013
CERTIFYING GASFITTER

ANSWER SCHEDULE

ANSWER 1

- Expansion, contraction/thermal effects
- Earthquake
- Vibration

Total 3 Marks

ANSWER 2

Any FOUR (1 mark each)

- Flue size
- Roof pitch
- Support
- Wind speed for area
- Distance to ridge or bottom of sheet above
- Material compatibility

Total 2 Marks

ANSWER 3

- (a) The fitting is made of dezincification-resistant brass
(b) Underground.

Total 2 Marks

ANSWER 4

Main run section points A – B	12 (1 mark)
Main run from point B downstream	11.5 (1 mark)

Pipe Section	Length Metres	Main Run m (from above)	Gas Flow MJ/h	Nominal Size
A – B	12	12	686	15
B – C	1	11.5	686	32
C – D	6		132	20
D – E	1.5		34	10
D – F	2		98	15
C – G	1		554	25
G – H	1.2		160	20
G – I	1.5		394	25
I – J	1.2		62	15
I – K	1		332	25
K – L	1.5		204	20
K – M	7		128	20

(1 mark each)

(1 mark each)

Total 26 Marks

ANSWER 5

- (a) Two vents, high and low level. (1 mark)
- (b) $686 - 128 = 558$ MJ required (1 mark)
Ventilation factor 300 (1 mark)
Size = $167,400 \text{ mm}^2$ (1 mark)
- (c) Range hood creating negative pressure. (1 mark)

Total 5 marks

ANSWER 6

- (a) Winter temperature 4°C (1 mark)
Total MJ = 686 (from Question 4) (1 mark)
Vaporisation capacity of a 45 kg LPG cylinder at $4^\circ\text{C} = 141$ (1 mark)
No. of cylinders required = $\frac{686}{141} = 4.86$ (4 marks)
So 5 cylinders required (1 mark)
- (b) 5 (1 mark)

Total 5 Marks

ANSWER 7

- (a) $3 \times 3.6 = 10.8$ MJ/h
Gas rate = $10.8 \div 90 = 0.12 \text{ m}^3/\text{h}$ (3 marks)
- (b) Correction factor = $\frac{(101.3 + 7)}{101.3} = 1.069$ (2 marks)
Corrected volume = $1.069 \times 0.12 = 0.128 \text{ m}^3$ (1 mark) (3 marks)
- (c) Room volume = 72.9 m^3 (1 mark)
Maximum gas consumption = 0.4 MJ/h/m^3 (1 mark)
Maximum gas consumption of heaters = $72.9 \times 0.4 = 29.16 \text{ MJ/h}$ (1 mark)
8.1 kW (1 mark)
- (d) Any THREE (1 mark each)
Written testing procedure required
Inert gas used for purging
Purge area outdoors
Greater clearances to ignition sources and openings (3 marks)

Total 13 Marks

ANSWER 8

- (a) (i) Any THREE (1 mark each) 1.5m from the floor
- Centrally located
 - Living area
 - As per manufacturers instructions
- (ii) • Next to a heat source
• In direct sunlight
• On an external wall
• In a non-living area (3 marks)
- (b) (i) There is a hole in the heat exchanger products of combustion are entering the home. (1 mark)
- (ii) Any TWO (1 mark)
- Burners were incorrectly located heat exchanger was over heated.
 - Movement/expansion stresses
 - Corrosion of the heat exchanger (2 mark)
- (c) (i) The furnace is overheating. (1 mark)
- (ii) Any TWO (1 mark each)
- Fan set too low
 - Crushed ducting
 - Outlets closed
 - Return air covered
 - Return air filter blocked (3 marks)

Total 10 Marks

ANSWER 9

- (a) • Advise the owner or occupier
• Advise the Secretary of Energy/Energy Safety Service (2 marks)
- (b) Minimum length of section 'X' = 2500mm (2 marks)
- The minimum diameters of each section of the flue = 100 mm, 150 mm and 150 mm (3 marks)
- The minimum rise of the lateral flue connector = 20 mm per metre 43 mm (1 mark)
- Flue drawn showing manifold as per figure H4 (1 mark)
- (7 marks)

Total 9 Marks

ANSWER 10

- (a)
- Allow people adequate time to evacuate safely.
 - Allow fire service personnel adequate time to undertake rescue and fire-fighting operations.
 - Avoid collapse and consequential damage to adjacent household units or other property.
- (3 marks)
- (b) (i)
- Fire resistance
 - Bracing
 - Sound proofing
 - Wet lining
- (2 marks)
- (ii)
- Colour of the board
 - Labels/stamping/thickness
- (2 marks)
- Total 7 Marks**

ANSWER 11

- (a) Any THREE (1 mark each)
- Barriers
 - Nets
 - Meshes
 - Harnesses/restraints
 - Airbags
 - Scaffolding
- (3 marks)
- (b)
- | Component Name | Letter |
|----------------|--------|
| Walings | D |
| Sheeting | A |
| Props | C |
| Struts | B |
- (2 marks)
- (c) Department of labour approved Codes of Practice
e.g.
Working at heights
Confined spaces
Underground services
- (3 marks)
- Total 10 Marks**

SECTION B

1. A significant Hazard
2. A 19 mm
3. B Non-reactive
4. C 5 metres
5. A When the employee provides their own and it is of acceptable standard
6. A As evidence of good practice in a court.
7. D 12 months
8. E Employer
9. D Issue a Hazard Notice
10. A 1.5 kPa

Total 10 Marks