No. 9196

Plumbers,
Gasfitters and
Drainlayers Board

REGISTRATION EXAMINATION, JUNE 2013

CERTIFYING GASFITTER

ANSWER SCHEDULE

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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 mm^2 (1 mark)
(3 marks)

(c) Range hood creating negative pressure. (1 mark)
Total 5 marks

ANSWER 6

(a) Winter temperature 4ºC (1 mark)
Total MJ = 686 (from Question 4) (1 mark)
Vaporisation capacity of a 45 kg LPG cylinder at 4ºC = 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 × 3.6 = 10.8 MJ/h
Gas rate = 10.8 ÷ 90 = 0.12 m^3/h (3 marks)

(b) Correction factor = $\frac{(101.3 + 7)}{101.3}$ = 1.069
(2 marks)

Corrected volume = 1.069 × 0.12 = 0.128 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 × 0.4 = 29.16 MJ/h (1 mark)
8.1 kW (1 mark)
(4 marks)

(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