No. 9193

Plumbers,
Gasfitters and
Drainlayers Board

REGISTRATION EXAMINATION, JUNE 2013

LICENSED GASFITTER

ANSWER SCHEDULE

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ANSWER 1

(a) Any FIVE (1 mark each)

- Gas type
- Available Pressure
- Meter/cylinder capacity
- Maximum possible over pressure
- Clearances for gas supply point
- Clearances for appliances
- Suitability of appliances/pipe work/flue
- Others as per AS/NZS 5601.1 section 6.2 and section 2.6 (5 marks)

(b)
- Under sized pipework
- Insufficient supply cylinders volume
- Blocked pipework
- Faulty regulator (4 marks)

(c)
- To detect leaking gas
- To identify the gas (2 marks)

Total 11 marks

ANSWER 2

a) Name: Flame rectification

Letter	Number
A	1
B	16
C	9
D	22
E	12
F	4
G	5
H	18
I	6
J	13

b) Name: Mercury vapour valve

Letter	Number
K	17
L	19
M	7
N	20
O	15
P	10
Q	23
R	11

c) Name: Thermo-electric flame failure device

Letter	Number
S	24
T	25
U	14
V	26
W	2
X	3
Y	8
Z	21

Total 16 marks

ANSWER 3

(a) (i)

Name of test	Leakage test (1 mark)		
Pressure of test	2 kPa or operating pressure whichever is greater (1 mark)		
Stabilisation time	2 mins	Test time	5 mins (½ mark)
Permitted pressure loss	0.35kPa (½ mark)		

(3 marks)

(ii)

Name of test	Gas tightness test (1 mark)		
Pressure of test	7 kPa (1 mark)		
Stabilisation time	2 mins	Test time	5 mins (½ mark)
Permitted pressure loss	Nil (½ mark)		

(3 marks)

(iii)

Name of test	Installation test (1 mark)		
Pressure of test	2 kPa or operating pressure whichever is greater (1 mark)		
Stabilisation time	2 mins	Test time	5 mins (½ mark)
Permitted pressure loss	Nil (½ mark)		

(3 marks)

(iv)

Name of test	Pipework test (1 mark)		
Pressure of test	7 kPa or 1.5 times operating pressure whichever is greater (1 mark)		
Stabilisation time	2 mins	Test time	5 mins (½ mark)
Permitted pressure loss	Nil (½ mark)		

(3 marks)

(b)

Pressure of test	6 kPa (1 mark)		
Stabilisation time	2 mins	Test time	5 mins (1 mark)
Permitted pressure loss	0.25kPa (1 mark)		

(3 marks)

Total 15 marks

ANSWER 4

Any FOUR (1 mark each)

- Ventilated to outside
- Low level and high in the locker
- In an area where leaking gas will no gather in the boat
- Minimum size 1000 mm^2 free area for each kg of gas stored
- Sealed from inside the boat
- Vent not obstructed by gas cylinder
- Constructed of non-corrosive material

Total 4 marks

ANSWER 5

(a) Any THREE (1 mark each)

- The pilot flame would burn lazy and yellow
- The flame could generate soot
- The pilot may not power the thermocouple enough and shut down
- The appliance could light explosively (3 marks)

(b) Any THREE (1 mark each)

- The products of combustion would spill into the room via the front opening
- The flame would become vitiated
- CO would be generated/ incomplete combustion
- Heat would spill from the front of the appliance damaging the appliance or activating the thermal fuse in the thermocouple. (3 marks)

(c)

- Combustion
- Flue product dilution
- Ambient temperature (3 marks)

Total 9 marks

ANSWER 6

(a)

Method of protection #1	Corrosion resistant coating (1 mark)
Material being protected	Any metallic pipework (1 mark)

Method of protection #2	Cathodic protection (1 mark)
Material being protected	Any metallic pipework (1 mark)

Method of protection #3	Sleeving (1 mark)
Material being protected	Any pipework (1 mark)

(6 marks)

(b)
- 100mm separation
- Cross at not less than 45° (2 marks)

Total 8 marks

ANSWER 7

Drawing to show and/or label
Deduct 1 mark for any item missing.

- Diaphragm (drawn ½ mark, correctly located ½ mark)
- Adjustment screw (drawn ½ mark, correctly located ½ mark)
- Spring (drawn ½ mark, correctly located ½ mark)
- Locking nut (drawn ½ mark, correctly located ½ mark)
- Breather (indicated ½ mark)
- Inlet/outlet (indicated ½ mark)
- Valve (drawn ½ mark, correctly located ½ mark)
- Regulator functional (2 marks)

Total 6 marks

ANSWER 8

(a) 1. Ensure other gas appliances are not operating
2. Operate fire and set onto high
3. Check the operating pressure is correct on the appliance
4. Measure the consumption through the meter over a fixed time, e.g. volume /minute
5. Calculate the hourly consumption in MJ (5 marks)

(b) The consumption will be greater than listed on the data plate

(1 mark)

Total 6 marks

ANSWER 9

(a) 1. CO_2 Carbon dioxide
2. H_2O Water vapour (2 marks)

(b) Any TWO (1 mark each)
- CO Carbon Monoxide
- C Carbon
- H_2O Water vapour (2 marks)

Total 4 marks

ANSWER 10

Any THREE (1 mark each)
- Uses less material
- Better flue draught/less restriction for flue gases and condensate
- Fewer penetrations through the building envelope
- Less cooling effect on the flue

Total 3 marks

ANSWER 11

Vol = 3 × 2 × 6 + 4 × 5 × 3
= $96m^3$ (1 mark)
Rating = 96 x 0.4 (2 marks)
= 38.4 MJ/h (1 mark)

Total 4 marks

SECTION B

1.	E	200mm
2.	A	0.65
3.	A	2% - 10%
4.	C	50mm
5.	A	500mm
6.	B	Combustion air and combustion products are drawn through the appliance by a fan located after the combustion chamber of the appliance.
7.	E	to allow liquid to flow back into the cylinders
8.	A	2.75kPa
9.	C	room sealed
10.	C	Notifiable
11.	E	electromagnet
12.	C	E2
13.	D	95MJ/m^3
14.	C	75mm

Total 14 marks