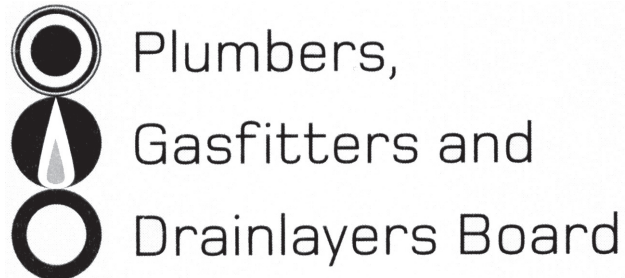


No. 9197



REGISTRATION EXAMINATION, JUNE 2017
TRADESMAN DRAINLAYER

ANSWER SCHEDULE

ANSWER 1

Volume of drain = $\pi R^2 L = \pi \times 0.05^2 \times 55 = 0.432 \text{ m}^3$ (2 marks)

Allowance for spillage = 10% of 0.432 = 0.043 m^3 (1 mark)

Volume of water required = 0.475 m^3 (1 mark)

Weight of water = 475 kg (1 mark)

Total 5 marks

ANSWER 2

(a) Neutralizing traps are designed to treat corrosive waste before allowing it to be discharged into an outfall. (2 marks)

(b) Any THREE (1 mark each)

Scientific laboratories.

Photographic laboratories.

Printers.

Battery plants.

Electroplaters.

Tanneries.

Hospitals.

(3 marks)

Total 5 marks

ANSWER 3

(a) Any THREE (1 mark each)

Tree roots.

Penetrations.

Backfall.

Collapse.

Fats.

Foreign object.

(3 marks)

(b) Drawing to show:

• Weir

• Water seal depth

• Soffit

• Invert.

(5 marks)

Total 8 marks

ANSWER 4

- (a) Air introduced into the chamber so that aerobic bacteria work more efficiently. (3 marks)
- (b) Any TWO (1 mark each)
Heavier solids sink while lighter liquids float.
Differing density of components.
Input flow rate.
Retention time.
Tank volume. (2 marks)
- (c) Scum.
Liquid.
Sludge. (1 mark)
- (d) Plants absorb liquid through the roots and then the liquid is released through the leaves. (2 marks)
- (e) Any THREE (1 mark each)
Overloads the tank.
Flushes the sewage through to the effluent system.
Flooding the effluent disposal field.
Stirs up layers in the tank. (3 marks)
- (f) Any SIX (1 mark each)
Grease.
Bleaches.
Disinfectants.
Paint.
Paint thinners.
Herbicides.
Oils (automotive products).
Food scraps. (3 marks)
- (g) Any ONE (1 mark)
To limit temperature variations in the tank.
To provide fall for gravity fed tanks. (1 mark)

Total 15 marks

ANSWER 5

Any THREE (1 mark each)

Inspections within 2 m of entering and exiting the building.

Separated from the building foundation by 25 mm.

Straight and even gradient.

When passing through sleeved concrete must be sleeved or wrapped.

50 mm clearance from the top of the pipe to the underside.

Junctions not to be at an angle of more than 45°.

Total 7 marks

ANSWER 6

(a) Drawing to:

- be to correct scale
- have key points located in correct positions.

(3 marks)

(b) To provide access for inspection or cleaning or maintenance.

(1 mark)

- (c)
- Terminate outside the building and not be less than 900 mm from any opening to the building.
 - Be vented to the atmosphere independently of any vent pipe system connected directly to the foul water drainage system.

(3 marks)

Total 7 marks

ANSWER 7

Gradient	Gradient as %	Fall mm per m
1 in 200	0.5	5
1 in 55.5	1.8	18
1 in 80	1.25	12.5
1 in 120	0.83	8.3

Total 8 marks

ANSWER 8

Any THREE (1 mark each)

Provide lights.

Provide barriers.

Cover with a steel sheet.

Temporarily backfill.

Total 3 marks

ANSWER 9

Section	Total length of the section (m)	Total fall of the section (mm)
A – B	13	
B – C	12.8	
D – E	16	
E – C	15.8	
C – F	4	
A – F	29	
D – F	35.5	

Total 7 marks**ANSWER 10**

Section	Fall
A – B	49.5 - 50.1
B – C	66 - 66.8
C – D	15
D – E	58.1
E – F	66.4 - 65

Point	Depth
A	643.6 - 652.4
B	693.7 - 701.9
C	760.5 - 761.9
D	775.5 - 776.9
E	833.6 - 835.0

Total 10 marks**ANSWER 11**

- (a) Name: Petrol interceptor trap. (1 mark)
- Location: Petrol station forecourt or equivalent. (1 mark)
- Function: Separate fuel and oil from discharge. (1 mark)
Collect silt.
- (b) Name: Rodding point (1 mark)
- Location: Anywhere an inspection is required at a boundary. (1 mark)
- Function: To provide access to the drain for drain maintenance. (1 mark)

Total 6 marks

ANSWER 12

Any FOUR (1 mark each)

- Rubber ring.
- Solvent cement.
- Electrofusion.
- Rubber sleeve.
- Bolted gland.
- Epoxy resin.
- Cement mortar.
- Silver brazing.
- Threading.

Total 4 marks

ANSWER 13

(a) Any FOUR (1 mark each)

- Gases.
- Flooding.
- Temperature.
- Dust.
- Suitable exit strategy.
- Stability of walls etc.

(4 marks)

- (b)
- They are heavier than air.
 - There is no air movement.

(1 mark)

Total 5 marks

SECTION B

1. C 350 mm.
2. E Wear.
3. D It will increase four times.
4. E 60°
5. D 255.
6. B To check a pipe is completely vertical.
7. D When the trench is 1.0 metre wide.
8. B 3.000 m.
9. A L/minute.
10. C To allow for differential settlement in the system.

Total 10 marks