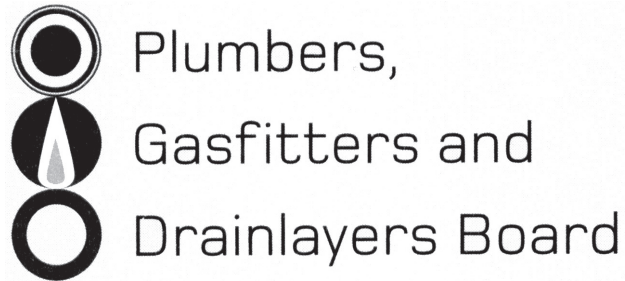


No. 9198



REGISTRATION EXAMINATION, JUNE 2020
CERTIFYING DRAINLAYER

ANSWER SCHEDULE

ANSWER 1

- (a) • Store the waste in a holding tank for future disposal at a suitable site.
• Treat the waste until it reaches a standard acceptable to be discharged to the sewer. (2 marks)
- (b) Any TWO (1 mark each)
• G14 – Industrial Liquid Waste.
• F3 – Hazardous Substances and Processes.
• B2 – Durability. (2 marks)
- (c) Any FOUR (½ mark each)
• Harmful solids and material which can combine with water to form a cemented mass.
• Oils, fats, grease.
• Paint.
• Asbestos.
• Flammable or explosive material.
• Genetic wastes.
• Medical wastes.
• Highly radioactive material.
• Metal compounds e.g. arsenic.
• Pesticides.
• Chlorine. (2 marks)
- (d) Any FOUR (1 mark each)
• Settling.
• Intercepting traps.
• Neutralizing.
• Grease arrestors.
• Dilution systems.
• Cooling systems. (4 marks)

Total 10 marks

ANSWER 2

Section	Fall (mm)
A – B	75 (½ mark)
B – C	100 (½ mark)
C – D	112.5 (½ mark)
D – E	1500 (½ mark)
E – F	150 (½ mark)
C – G	50 (½ mark)
G – H	87.5 (½ mark)

Point	Depth (mm)
B	775 (1 mark)
C	875 (1 mark)
D	987.5 (1 mark)
E	2487.5 (1 mark)
F	2637.5 (1 mark)
G	825 (1 mark)
H	737.5 (1 mark)

Total 10 marks

ANSWER 3

- (a) (i) Total volume = $7 \text{ m} \times 2 \text{ m} \times 3 \text{ m} = 42 \text{ m}^3$
(ii) Course sand vol = $42 \text{ m}^3 \times 60\% = 25.2 \text{ m}^3$
(iii) Fine sand vol (= $42 \text{ m}^3 \times 40\%$) = 16.8 m^3 (3 marks)

- (b) • Vol of drain = $0.7854 \times 0.100 \times 0.100 \times 60 = 0.4712 \text{ m}^3$ (1 mark)
= 471.2 litres (1 mark)
• Allowance (10%) = 471.2 litres (1 mark)
• Vol of water required = 518.32 litres (1 mark)
• Weight of water required = 518.32 kg (1 mark)

(5 marks)

Total 8 marks

ANSWER 4

Building drawn to correct scale. (2 marks)

Surface water drainage system to scale. (2 marks)

Total 4 marks

ANSWER 5

- (a) No vent on ORG (1 mark)
 Vent on A or D (1 mark)
 No vent on B (1 mark)
 No vent on C (1 mark)
 Vent on E (1 mark)
 Vent on F (1 mark)

(6 marks)

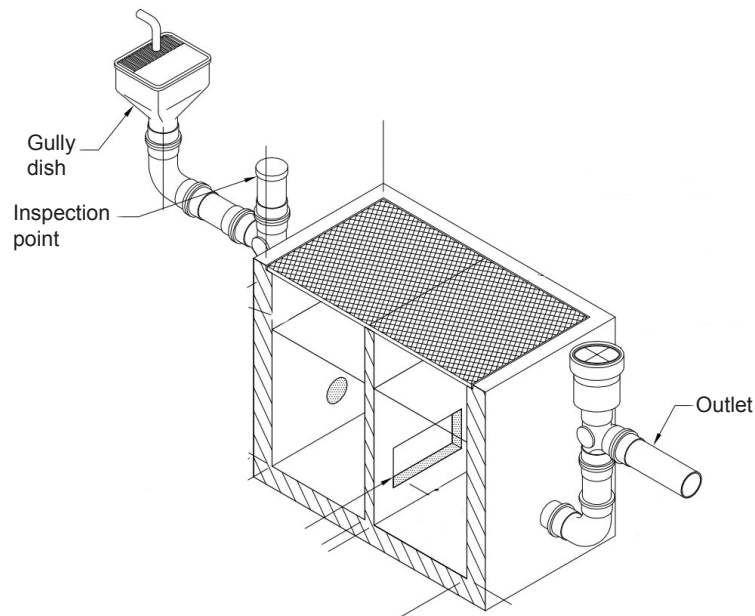
(b)

Drain	Minimum diameter (mm)	Minimum gradient
A	65 (½ mark)	2.5% OR 1:40 (1 mark)
B	65 (½ mark)	2.5% OR 1:40 (1 mark)
C	100 (½ mark)	1.65% OR 1:60 (1 mark)
D	65 (½ mark)	2.5% OR 1:40 (1 mark)
E	100 (½ mark)	1.65% OR 1:60 (1 mark)
F	100 (½ mark)	1.65% OR 1:60 (1 mark)

(9 marks)

Total 15 marks

ANSWER 6



The sketch to include (1 mark each):

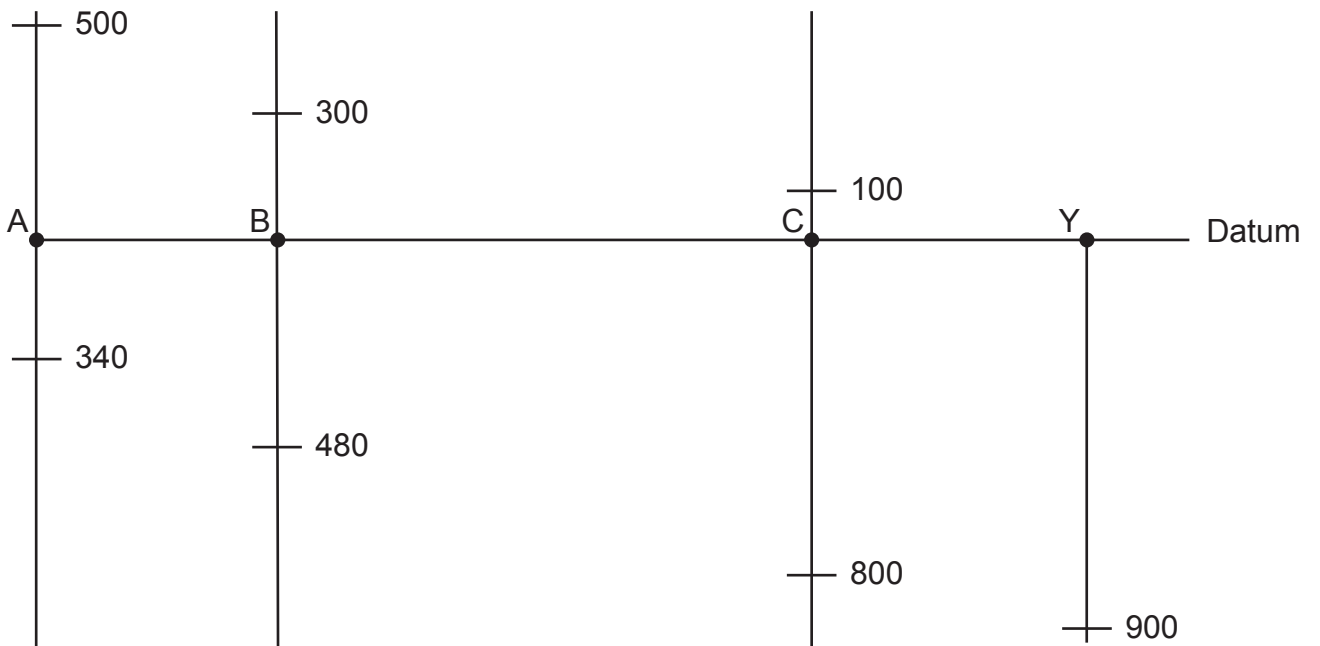
- A gully dish.
- Cascade at inlet.
- Outlet.
- Inspection openings.
- Lids.

Total 5 marks

ANSWER 7

Length of pipe sections		
Pipe section	Distance	Fall (mm)
A - B	7 m	140
B - C	16 m	320
C - Y	5 m	100

(a)



(1 mark each level) (8 marks)

(b)

A	B	C	Y
840 mm	780 mm	900 mm	900 mm

(1 mark each depth) (4 marks)

Total 12 marks

ANSWER 8

- (a) Any TWO (1 mark each)
- Lack of oxygen/asphyxiation.
 - Poisonous gases.
 - Flammable gases.
 - Contaminated soils. (2 marks)
- (b) Any FOUR (½ mark each)
- Obtain copies of a past and current works permit.
 - Locate services.
 - Isolate any electrical service apart from that necessary.
 - Wear appropriate PPE.
 - Carry out site inspection.
 - Locate safety shut off valves.
 - Complete a task analysis. (2 marks)
- (c) 19.5% (AS/NZS 2865) (1 mark)
- (d) Any TWO (1 mark each)
- Contact electricity/cable detection company.
 - Carefully hand dig sufficient to lay the new drain.
 - Get the property plans from the territorial authority.
 - If in an area of gas supply, contact gas supplier.
 - Look for signs of services on the property such as service boxes, drain inlet/outlet, pipe diameters. (2 marks)

Total 7 marks

ANSWER 9

Any FOUR (1 mark each)

- How to adjust guards.
- PPE to be worn.
- Method of isolation – turning on and off.
- Pre-use inspections.
- Procedure to be followed in emergency.
- Operating procedure instructions.

Total 4 marks

ANSWER 10

- The work must be carried out competently.
- The work must be carried out safely.
- The work must be carried out compliantly.

Total 3 marks

ANSWER 11

(a) Any THREE (1 mark each)

- Cuts or punctures to the skin.
- Digestion (eating).
- Breathing.
- Eyes.

(3 marks)

(b) Any THREE (1 mark each)

- Tetanus.
- Hepatitis B.
- Hepatitis A.
- Giardia.
- Salmonella.

(3 marks)

(c) Any THREE (1 mark each)

- Wear gloves.
- Wear breathing apparatus.
- Wear eye protection.
- Wear overalls.
- Be inoculated/vaccinated.

(3 marks)

(d) Any THREE (1 mark each)

- Wash hands.
- Use disinfectant to clean the area.
- Clean tools after work is completed.
- Remove soiled clothing.

(3 marks)

Total 12 marks

ANSWER 12

Any THREE (1 mark each)

- Low pressure air test.
- High pressure air test.
- Water test.
- Vacuum test.

Total 3 marks

SECTION B

1. C Eliminate the hazard from the employee's workplace.
2. A To recover plant and equipment from the site.
3. B Drainlayer B.
4. E 50 years.
5. A Between 20% and vertical.
6. A To prevent trap seal loss due to compression.
7. A 24 hours.

Total 7 marks