



8202-535 MARCH 2018

Level 3 Advanced Technical Diploma in Plumbing (450)

Level 3 Plumbing – Theory exam

If provided, stick your candidate barcode label here.

**Wednesday 21 March 2018
09:30 – 11:45**

Candidate name (first, last)

First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Gender (M/F)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

• If any additional answer sheets are used, enter the additional number of pages in this box.

• Please ensure that you **staple** additional answer sheets to the **back** of this answer booklet, clearly labelling them with your full name, enrolment number, centre number and qualification number in BLOCK CAPITALS.

• All candidates need to use a **black/blue pen**. **Do not** use a pencil or gel pen.

• If provided with source documents, these documents **will not** be returned to City & Guilds, and will be shredded. **Do not** write on the source documents.

***I declare that I had no prior knowledge of the questions in this assessment and that I will not divulge to any person any information about the questions.**

You should have the following for this examination

- a pen with blue or black ink
- non-programmable scientific calculator

General instructions

This question paper is the property of City and Guilds of London and should be returned after the examination.

- The maximum marks for each question is shown in brackets.
- Answer **all** questions.



1 Explain how the working principles of a non-concussive tap can be beneficial to a client. (3 marks)

2 The client has complained of a loud bang when they close any cold tap suddenly. Explain how good practice and installing a component would rectify the issue. (3 marks)

3 State the **five** fluid categories listed in the water supply water fittings regulations. (5 marks)

4 a) State the **minimum** temperature and **maximum** time required for hot water to reach appliance outlets as stated in the water regulations. (1 mark)

b) If the above criteria cannot be met, explain how the system would be upgraded in line with document G3. (2 marks)

5 Explain why a suitable material **must** be used when installing discharge pipework on an unvented hot water system. (3 marks)

6 Explain the preferred method for terminating D2 pipework at low level in a public carpark. (2 marks)

7 a) List **three** methods of heat gain within a building.

(3 marks)

b) Explain **two** forms of heat loss when designing central heating.

(4 marks)

8 a) Identify where the plumbing installation shown in Figure 1 would be used. (1 mark)

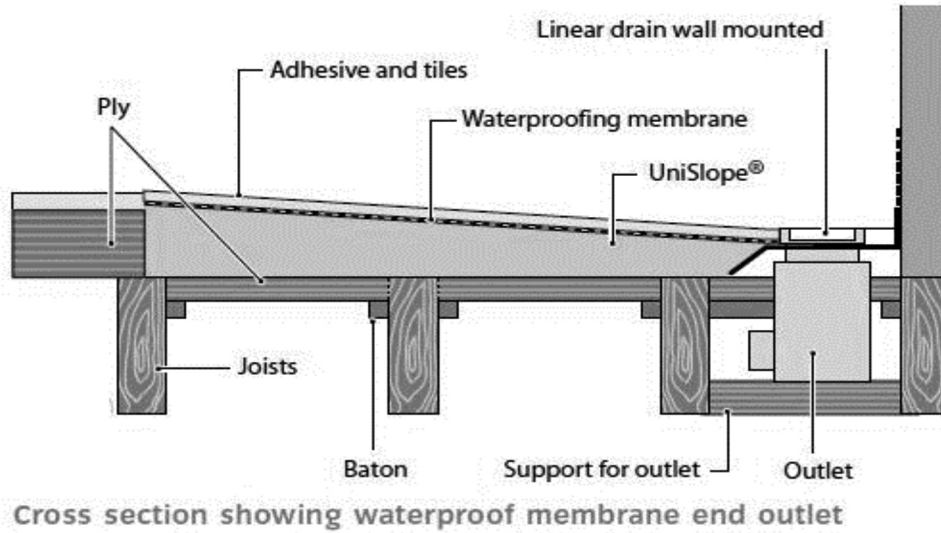


Figure 1

b) State **two** advantages of this system type. (2 marks)

9 Explain an advantage of installing an air admittance valve into a soil stack. (2 marks)

10 Describe the term permitted development with regard to solar thermal. (1 mark)

11 When installing a solar thermal flat plate collector, the structure of the roof may become an issue.

a) State which part of the building regulations this would affect. (1 mark)

b) Explain why the load of the roof structure may become an issue when installing solar collectors. (2 marks)

12 Name **four** occasions where consent may be necessary when working on wholesome cold water supplies from a water undertaker. (4 marks)

13 State **two** components from the three tier level of safety installed in unvented hot water systems. (2 marks)

14 Explain **three** advantages of installing under floor heating. (3 marks)

15 Explain why a secondary ventilated stack prevents trap seal loss in appliances. (2 marks)

16 Calculate the approximate area in m^2 of the roof shown in Figure 2. (3 marks)
Length is 10 m
B = 5 m
C = 3 m

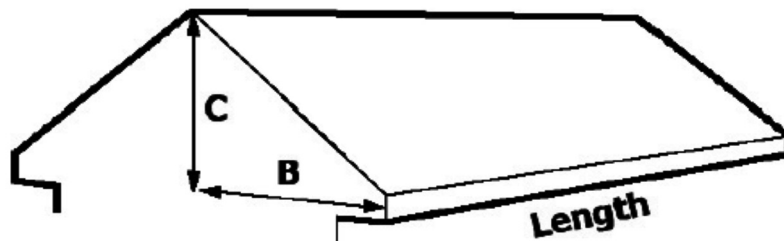


Figure 2
