



Level 3 Plumbing – Theory Exam

If provided, stick your candidate barcode label here.

Thursday 27 April 2017
09:00 – 11:00

Candidate name (first, last)

First

[illegible]

Last

[illegible]

Candidate enrolment number

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Date of birth (DDMMYYYY)

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Gender (M/F)



Assessment date (DDMMYYYY)

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Centre number

[illegible]

Candidate signature and declaration*

the

- 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

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

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 section within a question are shown.
- Answer **all** questions.

- 1 The water industry act 1991 governs the water regulation in this country. Describe the **main** requirements of Section 74.

(2 marks)

- 2 State the recommended components for the **two** items marked 1 and 2 in Figure 1 and explain why they are suitable for their location.

(4 marks)

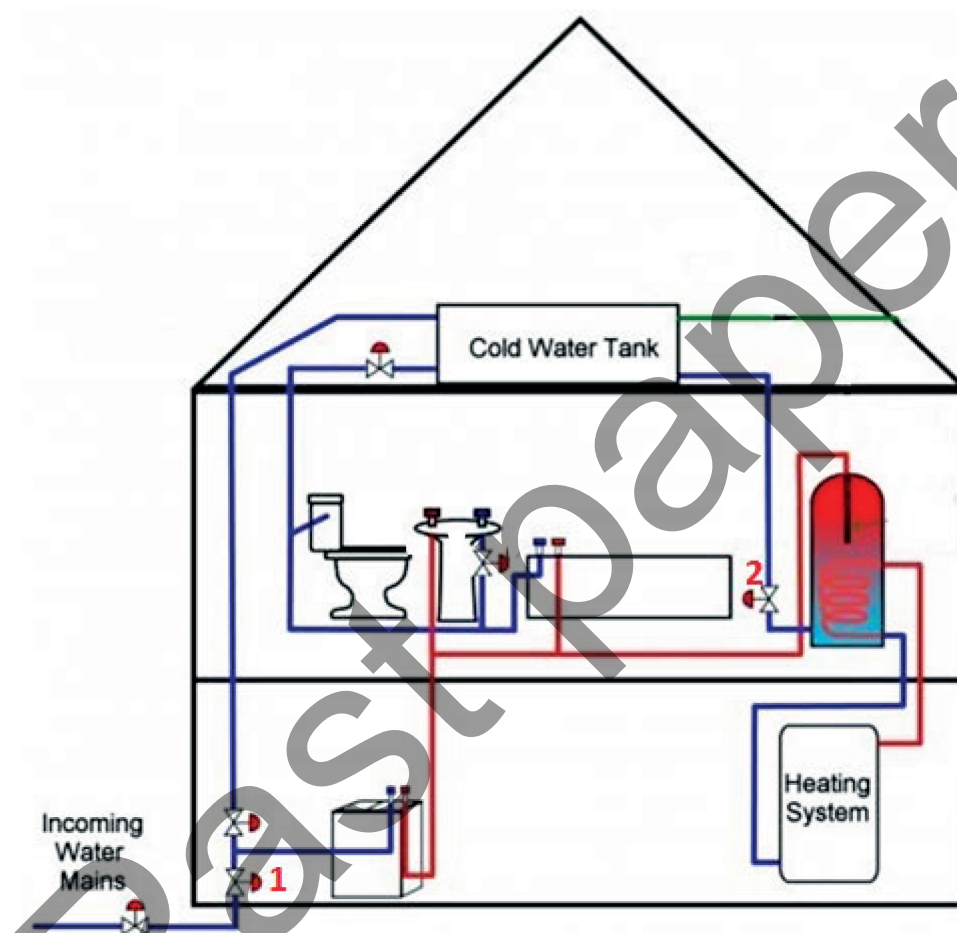


Figure 1

- 3 Complete the table below identifying the types of backflow prevention and the fluid risk category associated with it.

(3 marks)

Backflow Device	Mechanically operated Y/N	Non-Mechanically Operated Y/N	Application fluid category for back siphonage
AUK1			
AD			
BA			

- 4 a) What would be the **two most** suitable sources of information when diagnosing faults for the following two scenarios?

i) Malfunctioning water softener displaying a fault code.

(1 mark)

ii) Client reports intermittent loud noise from pipework in a domestic property.

(1 mark)

- b) Upon further investigation, the issue reported in 4 a) ii) is only occurring when the WC has been flushed. With this further information explain **three** faults that could be the cause.

(3 marks)

- 5
- a)
- Identify the component in Figure 2 and determine the length of the discharge pipework (D2) from the table below.
- (2 marks)
- Valve outlet – G1/2
 - Pipe length – 10 m
 - Five elbows.

Valve outlet size	Minimum size of discharge pipe D1*	Minimum size of discharge pipe D2* from tundish	Maximum resistance allowed, expressed as a length of straight pipe (ie no elbows or bends)	Resistance created by each elbow or bend
G½	15 mm	22 mm	Up to 9 m	0.8 m
		28 mm	Up to 18 m	1.0 m
		35 mm	Up to 27 m	1.4 m
G¾	22 mm	28 mm	Up to 9 m	1.0 m
		35 mm	Up to 18 m	1.4 m
		42 mm	Up to 27 m	1.7 m
G1	28 mm	35 mm	Up to 9 m	1.4 m
		42 mm	Up to 18 m	1.7 m
		54 mm	Up to 27 m	2.3 m

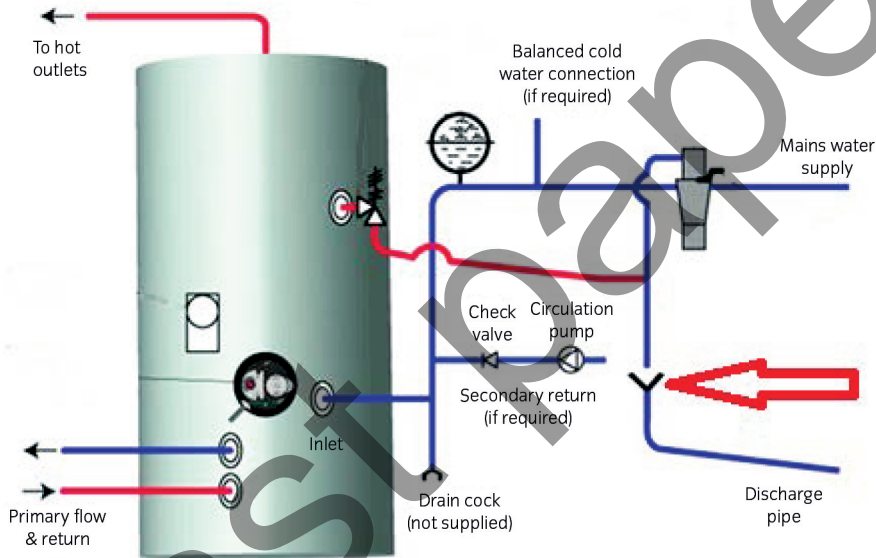


Figure 2

b) Explain the considerations when installing D2 pipework.

(4 marks)

6 Which building regulation would **best** provide guidance on unvented hot water?

(1 mark)

7 Explain the operating principles and functions of the zone valves in Figure 3.

(3 marks)

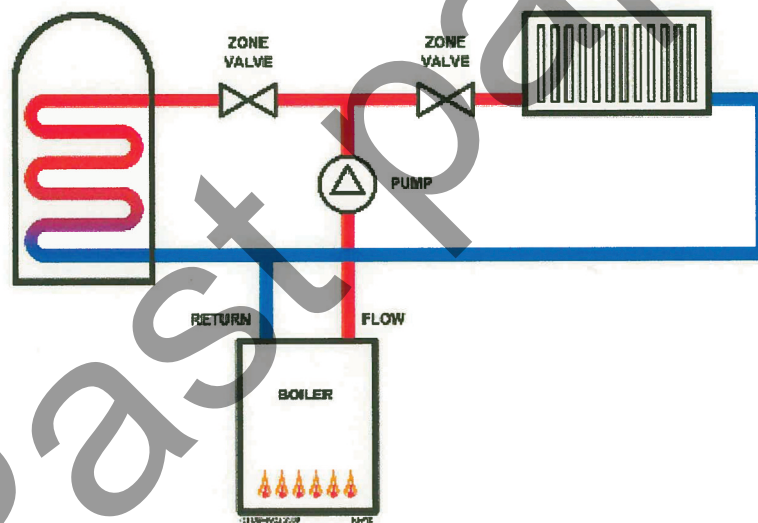


Figure 3

- 8 Identify the type of heating installation from the wiring diagram in Figure 4 and explain **two** advantages of this system type.

(3 marks)

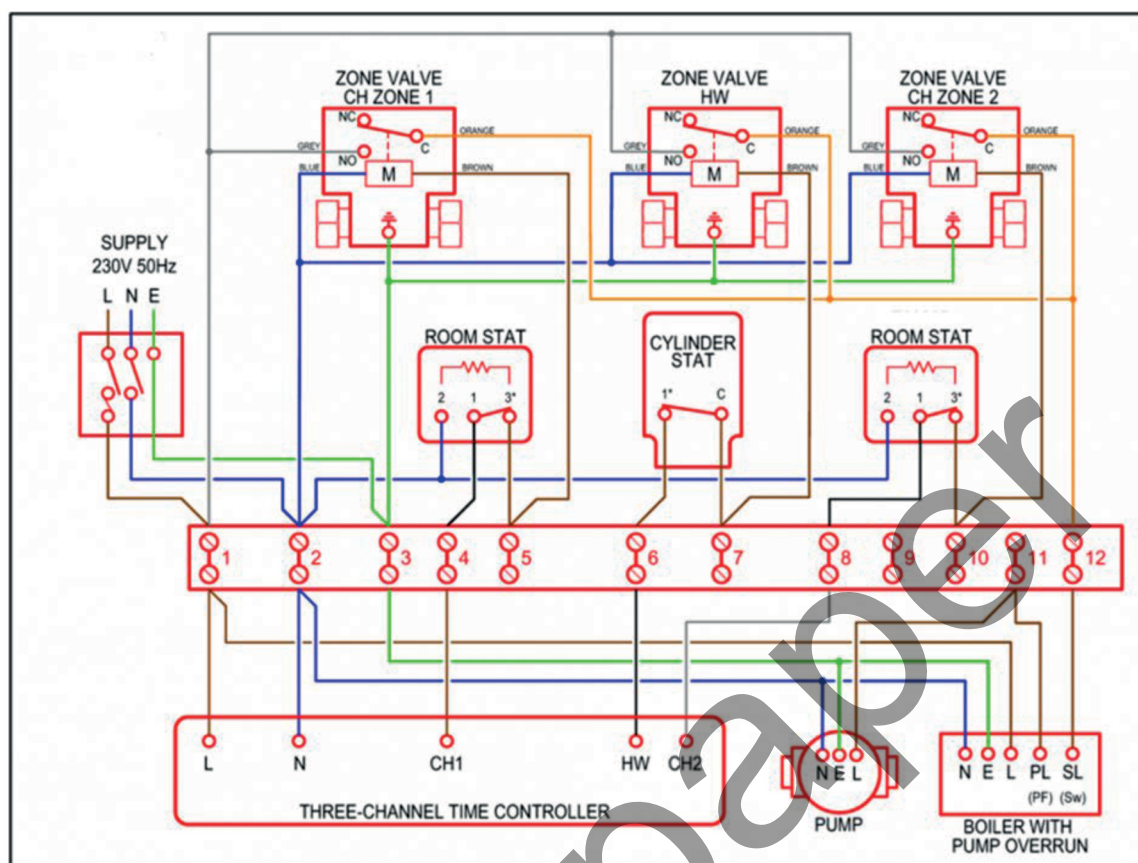


Figure 4

- 9 Explain why a polarity test is carried out and how a failed test is indicated.

(2 marks)

- 10 a) Complete the table below giving the type of drainage system and the recommended pipe sizes for the items indicated in the table.

(3 marks)

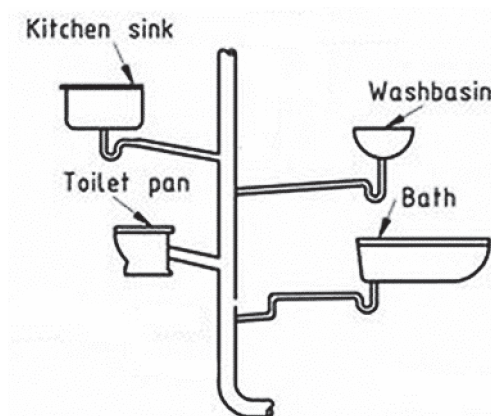


Figure 5

System type	
Bath waste size	
WC pan waste size	

- b) A customer requests an additional remote WC to the property. On further inspection it is confirmed that it cannot be connected to the existing soil stack. Explain an alternative method of waste removal which would be suitable for the customer's needs.

(2 marks)

- 11 A customer complains of bad smells from a washbasin in a rarely used en-suite. Describe **one** possible fault and explain why the bad smell occurs.

(2 marks)

- 12 Explain why Visual, Soundness and Performance tests are always undertaken during a commissioning procedure on an above ground drainage system. (3 marks)

- 13 Explain **one** advantage and **one** disadvantage of **two** different micro renewable technologies. (4 marks)

- 14 Describe **four** different job roles and the responsibilities that will be involved in a large plumbing contract on a new housing development. (4 marks)

- 15 Explain **two** areas to consider when monitoring progress against a work programme. (4 marks)

16 Discuss the factors that would influence the selection of a central heating system.

(9 marks)

Past paper