



8710-031 SAMPLE

T Level Technical Qualification in Building Services Engineering for Construction (8710)

Building Services Engineering Core (8710-30) – Theory exam (1) (8710-031)

If provided, stick your candidate barcode label here.

Date of exam (TBC)
Duration (2 hours 30 minutes)

Candidate name (first, last)

First [grid]

Last [grid]

Candidate enrolment number

[grid]

Date of birth (DDMMYYYY)

[grid]

Gender (M/F)

[grid]

Assessment date (DDMMYYYY)

[grid]

Centre number

[grid]

Candidate signature and declaration*

[signature box]

- If additional answer sheets are used, enter the additional number of pages in this box.
• Before taking the examination, all candidates must check that their barcode label is in the appropriate box.
• Please ensure that you staple additional answer sheets to the back of this answer booklet, clearly labelling these 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, unless otherwise instructed.
• 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 examination 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
• a non-programmable scientific calculator

General instructions

- The marks for questions are shown in brackets.
• This examination contains 24 questions. Answer all questions.
• Answer the questions in the spaces provided. Answers written in margins or on blank pages will not be marked.
• Cross through any work you do not want to be marked.

This exam has been split into two sections.

Below details the types of questions and marks available for each section.

Please allow time for each section accordingly.

Section A is made up of 77 marks and includes 21 short answer and medium answer questions.

Section B is made up of 33 marks and includes 3 extended response questions.



Section A

1 State **one** statutory document that specifically regulates **each** of the following activities.

a) The use of power tools on a construction site.

(1 mark)

b) The hazards of working on live electrical systems during maintenance procedures.

(1 mark)

2 Identify **three** solutions used to make a development socially sustainable.

(3 marks)

3 List **two** environmental technology systems that generate electricity.

(2 marks)

4 List **two** professional bodies in Building Services Engineering, including the specialism they are affiliated with.

(2 marks)

5 State **two** methods of tendering for a project. (2 marks)

6 A risk assessment has been created to work in an excavation on a busy site to lay services.
Describe one potential risk and an appropriate control measure to mitigate the risk. (2 marks)

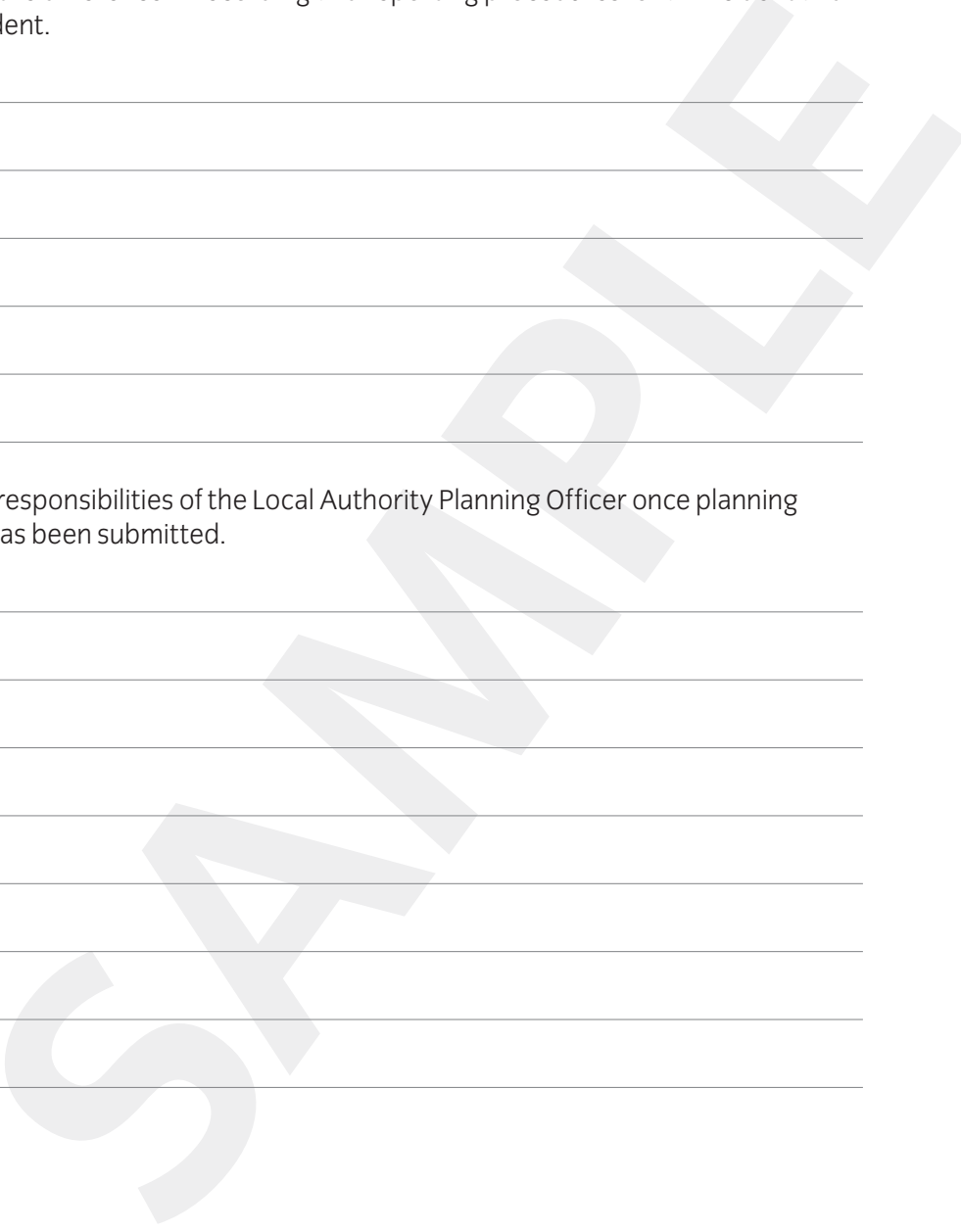
7 What is the **most** appropriate type of automatic fire detector for use in a shower room? (1 mark)

8 Explain what is meant by modular construction, giving one benefit of this construction type over traditional site base construction. (3 marks)

9 a) Explain the difference between an incident and an accident. (2 marks)

b) Explain the difference in recording and reporting procedures for an incident and an accident. (3 marks)

10 Explain **two** responsibilities of the Local Authority Planning Officer once planning permission has been submitted. (4 marks)



- 14 A contractor has won the contract to design and build a high-rise block of flats. The building will be constructed using a structural steel frame.

Give **four** advantages of steel that makes it suitable for the structural frame of the high-rise building.

(4 marks)

- 15 A ladder needs to scale a wall 8.3 m high and pass the top of the wall by a further 1 m.

Determine the **minimum** length of ladder required in order to maintain a correct ladder ratio.

Show your workings.

(5 marks)

SAMPLE

18 A contractor has won the contract to design and build a high-rise block of flats. The building will be constructed using a concrete slab and wooden joisted floors.

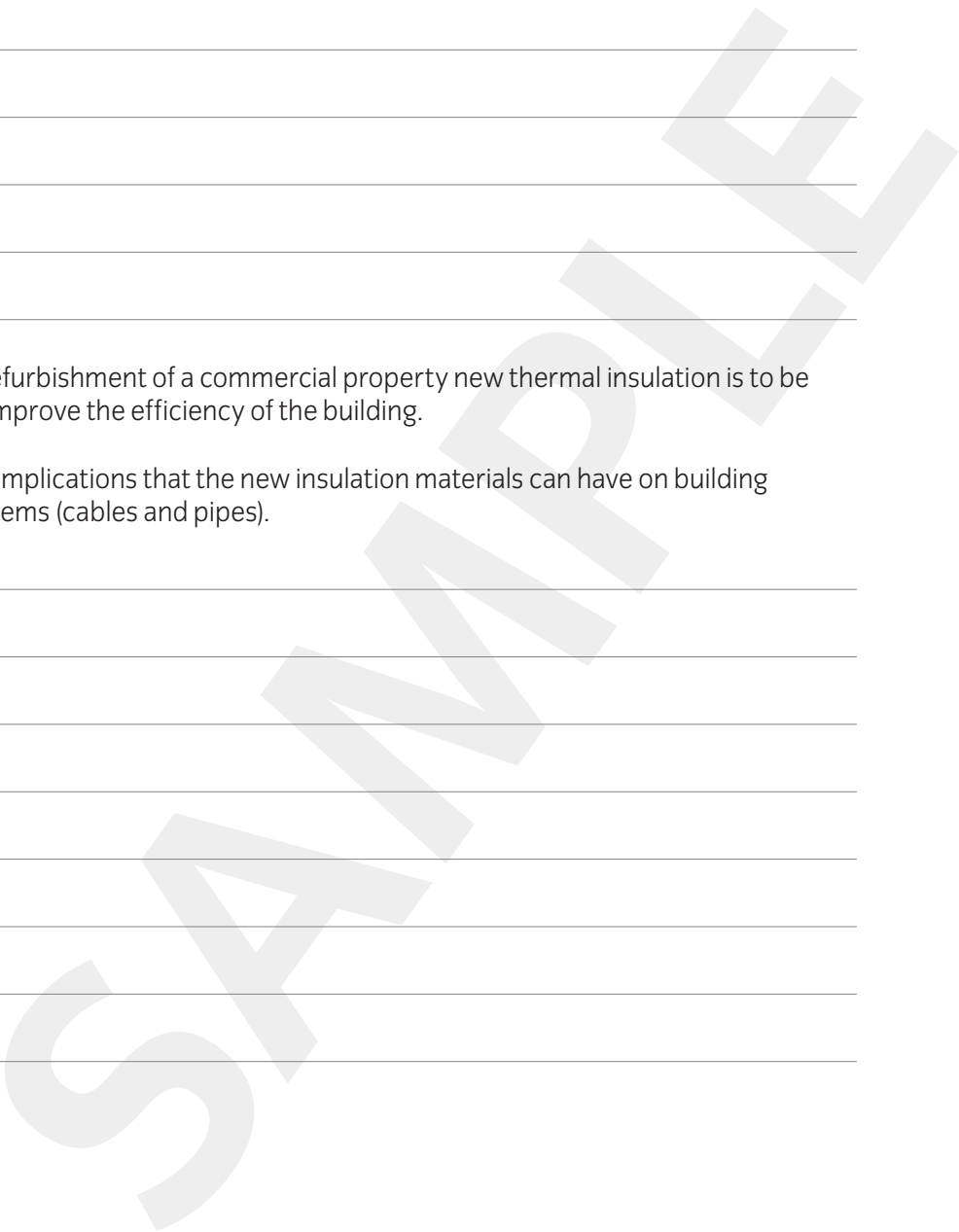
Describe the requirements for drilling holes in wooden joists.

(4 marks)

19 During the refurbishment of a commercial property new thermal insulation is to be installed to improve the efficiency of the building.

Explain **two** implications that the new insulation materials can have on building services systems (cables and pipes).

(4 marks)



20 Explain **one** environmental technology system that can reduce the costs of **each** of the following metered supplies.

You must select a different environmental technology for **each**.

a) Water.

(3 marks)

b) Gas.

(3 marks)

c) Electricity.

(3 marks)



Published by City & Guilds
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