



8711-032 MONTH 2022

T Level Technical Qualification in Onsite Construction (8711)

Onsite Construction Core (8711-30) – Theory exam (2) (8711-032)

If provided, stick your candidate barcode label here.

Date of exam (TBC)
Duration (2 hours)

Candidate name (first, last)

First [grid of 20 boxes]

Last [grid of 20 boxes]

Candidate enrolment number

[grid of 8 boxes]

Date of birth (DDMMYYYY)

[grid of 8 boxes]

Gender (M/F)

[grid of 2 boxes]

Assessment date (DDMMYYYY)

[grid of 8 boxes]

Centre number

[grid of 8 boxes]

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...
• 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...

\*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.

General instructions

- Use black or blue ball-point pen.
• 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.

The 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 60 marks and includes 20 low tariff and medium tariff, short answer questions, which target recall of knowledge, demonstration of understanding and application of knowledge and understanding.

Section B is made up of 30 marks and includes 3 extended response questions, which target application of knowledge and understanding and analysis and evaluation of information and issues.



**Section A**

1 State **two** principles of material science that must be considered during the construction design process. (2 marks)

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2 State the **two** factors, along with Force, used to determine the mechanical power required to move a load. (2 marks)

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3 During the design stage there are various methods used to display the overall finished look of a project.  
State **two** of these methods. (2 marks)

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4 State **two** pieces of information that can be obtained from a Gantt chart. (2 marks)

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5 State **two** materials that would reduce the transmission of sound. (2 mark)

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6 Give **one** advantage and **one** disadvantage that the use of a laser level has over traditional levels.

(2 marks)

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7 Describe how a critical path network is used to plan specific tasks within a construction project.

(2 marks)

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8 A 1000 mm deep trench, 300 mm wide and 2500 mm long, has been dug for a strip foundation. The original plans detailed a 300 mm deep layer of concrete, but it has been decided to fill the trench to the top.

Calculate how much **extra** concrete will be required, rounded to **two** decimal places.

Show your workings below.

(2 marks)

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9 Give **two** examples of how construction companies can incorporate corporate social responsibility (CSR) into construction projects.

(2 marks)

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10 Give **two** examples of where conflict can arise between a client and their main contractor during a domestic construction project and the conflict management techniques used to resolve them.

(4 marks)

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11 Describe **two** ways that sound can enter a building from the outside and **two** design features that will help keep sound out of the building.

(4 marks)

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12 Describe **two** behaviours, putting each into context, that would help maintain good relationships with customers during domestic construction projects.

(4 marks)

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13 Explain **two** effects moisture can have on construction materials.

(2 marks)

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14 Calculate the energy required to raise a 20 kg mass a distance of 15 m.

Show your workings below.

(2 marks)

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15 Explain how photovoltaic energy is generated in a domestic dwelling.

(5 marks)

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16 Four resistors with values of  $10\ \Omega$ ,  $25\ \Omega$ ,  $30\ \Omega$  and  $45\ \Omega$  are connected in Parallel to a 110 v supply.

Calculate:

- a) Total power dissipated by the circuit.
- b) The power dissipated by the  $30\ \Omega$  resistor.

Show your workings below.

(5 marks)

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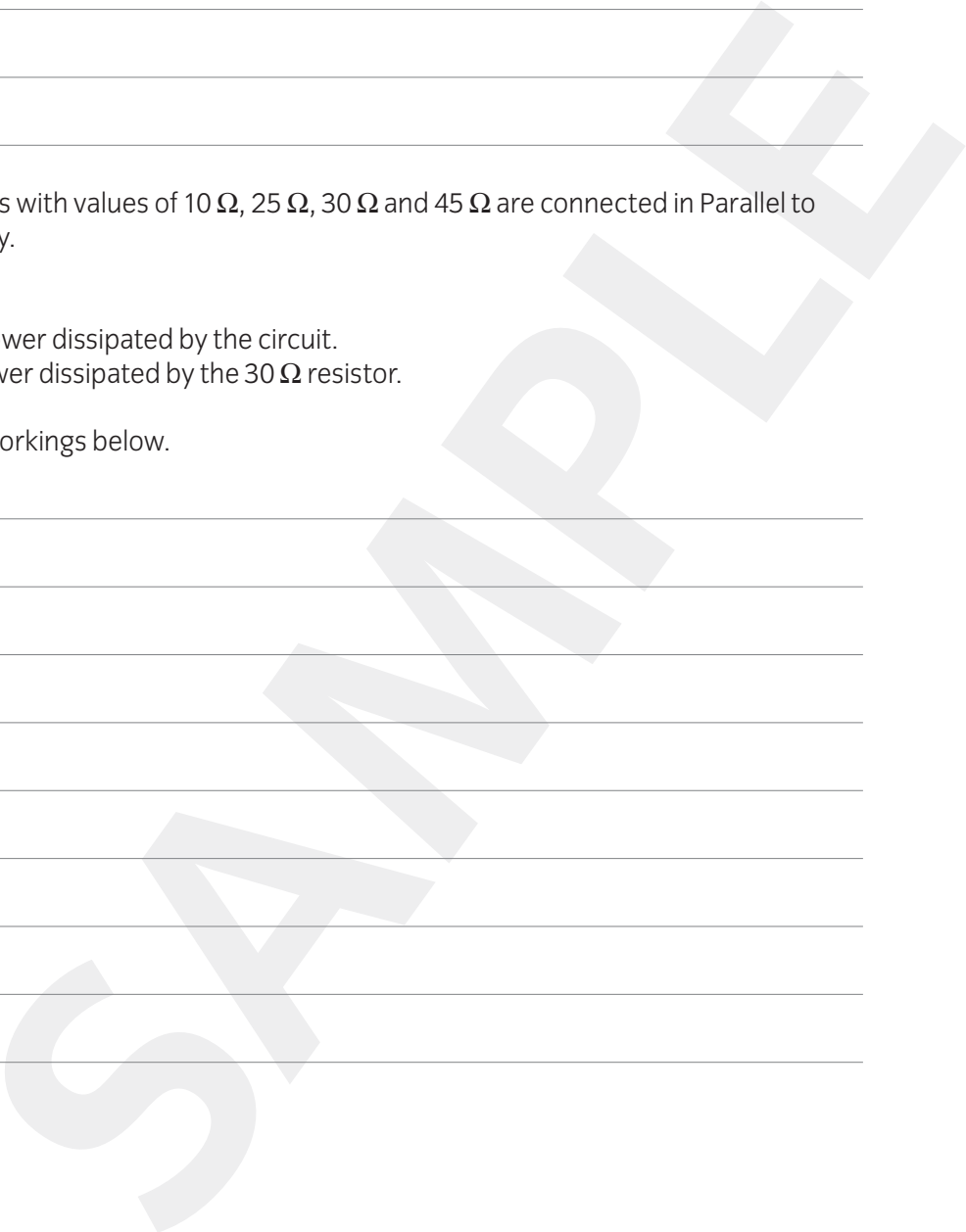
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- 17 During the design stage of a new build project, your client enquires about the use of 'Smart Concrete'.

Describe the usage and benefits of this new technology.

(2 marks)

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- 18 A new build office is to be illuminated. The client is considering the installation of light tunnels in the roof space to allow for natural lighting and has asked for your opinion.

Describe **four** benefits of utilising natural lighting in a building with regards to a person's health.

(4 marks)

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