Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

S24-3509U10-1

3509U10-1

FRIDAY, 14 JUNE 2024 – AFTERNOON

BUILT ENVIRONMENT

Unit 1: Introduction to the Built Environment

Paper version of on-screen assessment

1 hour 30 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**6**	
2.	**5**	
3.	**7**	
4.	**9**	
5.	**7**	
6.	**6**	
7.	**8**	
8.	**8**	
9.	**4**	
10.	**10**	
Total	**70**	

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01

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question. You are advised to divide your time accordingly.

The total number of marks available is 70.

You are reminded of the need for good English and orderly, clear presentation in your answers. The quality of your written communication, including appropriate use of punctuation and grammar, will be assessed in your answer to question **10**.

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Examiner only

Answer **all** questions.

1. The built environment sector includes infrastructure, such as roads and bridges.

(a) Identify **two** other civil engineering products that form part of the built environment. [2]

(i) .....

(ii) .....

(b) Name **two** plumbing services and explain how each service affects the health and well-being of a building's occupants. [4]

(i) .....

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(ii) .....

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Examiner only

2. The construction sector is dependent on the extraction of raw materials.

(a) State the industry that extracts **each** of the following raw materials. [3]

(i) Limestone: .....

(ii) Timber: .....

(iii) Gravel: .....

(b) Name **two** common construction components that are manufactured from steel. [2]

(i) .....

(ii) .....

Examiner only

3. (a) Maintenance is essential to ensure buildings retain a good appearance and operate efficiently.

Describe the following forms of maintenance. [4]

(i) Planned and preventative maintenance

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(ii) Corrective maintenance

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(b) Outline the purpose of a Building Operation and Maintenance Manual. [3]

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Examiner only

4. Buildings and structures in the built environment are categorised according to their characteristics and purpose.

(a) Add each of the buildings in the list below to the correct column in the table. [3]

Coffee shop Semi-detached house Factory

Religious	Commercial	Industrial	Communal	Residential

(b) A new rail network is being constructed in the Cardiff area to improve connections with nearby towns and villages.

(i) Outline **one** economic benefit and **one** social benefit of this type of development. [4]

Economic benefit:

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Social benefit:

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(ii) Outline **one** possible drawback of constructing the new rail network. [2]

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Examiner only

5. (a) Cladding is the non-load-bearing "skin" of material fixed to the external walls of a building.

Name **two** other components of external walls and give an example of each. [4]

Component 1: .....

Example: .....

.....

Component 2: .....

Example: .....

.....

(b) A building is to be completed with a flat roof.

(i) Suggest **two** suitable flat roof finishes. [2]

Finish 1: .....

Finish 2: .....

(ii) Name **one** rainwater component that needs to be fitted to the exterior of the building to protect it from rain. [1]

.....

Examiner only

6. An energy company is seeking permission to install a large number of wind turbines in a rural location in Mid Wales.

Explain the potential benefits **and** limitations of installing the wind turbines. [6]

Turn over.

Examiner only

7. (a) Cellular construction is often used in the construction of blocks of flats and student accommodation.

Describe **two** characteristics of cellular construction. [4]

(i) .....

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(ii) .....

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Examiner only

(b) This Grade II listed building is to be renovated.

Explain the importance of using heritage and traditional methods when maintaining the historic built environment. [4]

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Examiner only

8. A residential home developer is considering the purchase of a greenfield site.

(a) (i) Describe **two** benefits of a greenfield site to the developer. [4]

Benefit 1: .....

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Benefit 2: .....

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(ii) Describe **one** potential drawback of a greenfield site to the developer. [2]

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(b) The site is within a protected area.

Outline an approach the developer could take to reduce the environmental impact during construction of new houses on the greenfield site. [2]

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Examiner only

9. Electricians, gas engineers and plumbers are classified as building services engineers.

Describe the contribution made by **two** of these service engineers to building projects. [4]

1. .....

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2. .....

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Examiner only

10. A construction company has been contracted to refurbish a tunnel which is part of a town's sewerage system. The brickwork lining of the tunnel has deteriorated and needs to be repaired.

The work will be located in a section of the tunnel which is an enclosed space. The tunnel is 10 metres below ground level, and 50 metres in length.

Analyse the safety issues that will need to be considered during the planning stage of the project, including the personal protective equipment (PPE) that will be necessary when working in this situation. [10]

END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

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