Surname	Centre Number	Candidate Number
First name(s)		4

LEVEL 1/2 VOCATIONAL AWARD – NEW

E819U10-1

W24-E819U10-1

MONDAY, 15 JANUARY 2024 – AFTERNOON

CONSTRUCTION AND THE 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.	**4**	
2.	**12**	
3.	**8**	
4.	**6**	
5.	**6**	
6.	**10**	
7.	**10**	
8.	**14**	
9.	**10**	
Total	**80**	

E819U101
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 or as guided by the question. 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.

The total number of marks available is 80.

You are reminded of the need for clear and accurate written communication.

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Answer **all** questions.

1. Buildings usually include mechanical and electrical services.

(a) Identify **two** mechanical services you might find in a building. [2]

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(b) Identify **two** electrical services you might find in a building. [2]

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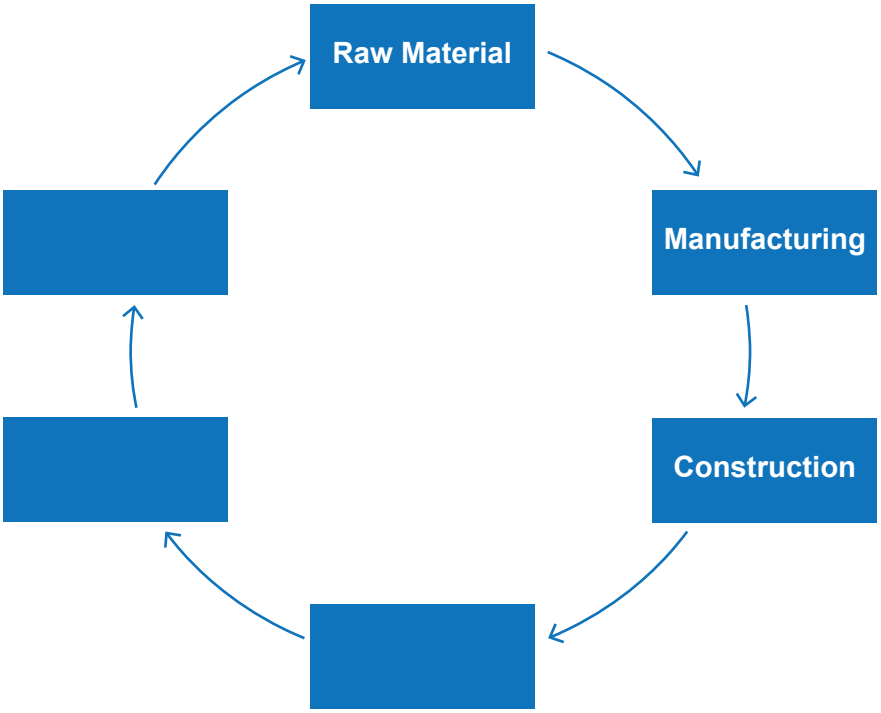
2. Construction is one stage of the built environment life cycle. The names of three stages of the life cycle have been removed from the image below.



(a) Raw material extraction comes before construction in the built environment life cycle. Identify **two** industries that extract raw materials. [2]

(i) industry 1 .....

(ii) industry 2 .....

(b) Manufacturing follows raw material extraction in the built environment life cycle.

(i) Describe **one** manufactured product made from timber that is used in construction. [2]

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(ii) Describe **one** manufactured product made from steel that is used in construction. [2]

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(c) Name **two** stages of the built environment life cycle which come after the construction stage. [2]

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(d) Civil engineering works, such as roads and bridges, are one form of construction activity carried out during the construction stage of the life cycle. Describe **two** other forms of construction activity.

(i) form of construction activity 1 [2]

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(ii) form of construction activity 2 [2]

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3. Low-rise buildings are constructed using a combination of elements and components.

(a) Describe the **function** of the following elements:

(i) Foundations [2]

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(ii) Super structure [2]

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(b) Describe **two** different types of roof finishes for flat roofs.

(i) roof finish 1 [2]

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(ii) roof finish 2 [2]

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4. Cellular constructions and rectangular frame constructions are types of building structures.

(a) Describe these **two** structures.

(i) Cellular [2]

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(ii) Rectangular frame [2]

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(b) (i) Suggest a construction professional who would decide on the type of structure for a new building. [1]

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(ii) Suggest **one other** construction professional who would oversee the building of the structure. [1]

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5. The term low-rise is often used to describe different types of buildings including industrial and agricultural buildings.

(a) (i) Give an example of a type of industrial building. [1]

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(ii) Describe the main uses, features and characteristics of an industrial building. [2]

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(b) (i) Give an example of a type of agricultural building. [1]

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(ii) Describe the main uses, features and characteristics of an agricultural building. [2]

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6. (a) Railways are an example of a form of infrastructure construction. Identify **four** other forms of infrastructure construction.

(i) form of infrastructure construction 1 [1]

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(ii) form of infrastructure construction 2 [1]

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(iii) form of infrastructure construction 3 [1]

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(iv) form of infrastructure construction 4 [1]

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(b) A new railway line and station is planned for a city centre, explain **one** economic and **one** environmental benefit this might have.

(i) Economic [2]

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(ii) Environmental [2]

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(c) Explain **one** environmental drawback this new railway line and station might have. [2]

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7. (a) Construction sites are hazardous environments. It is important to ensure that construction workers use the correct Personal Protective Equipment (PPE).

Match the **four** construction site situations with the most appropriate item of PPE. Draw a line connecting each construction situation with your selected item of PPE. [4]

Construction site situation	**Personal Protective Equipment**
Working under-ground in an enclosed space	Safety goggles
Replacing roof tiles on a four-storey heritage building	Ear defenders
Using a pneumatic drill to break up an old concrete path	Breathing apparatus
Mixing cement in a portable cement mixer	Safety harness

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(b) Working with gas and electricity can be extremely dangerous and may require extra consideration before undertaking any tasks.

(i) Identify **one** safety procedure that should be followed when working with gas. [1]

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(ii) Explain a consequence of not working safely with gas. [2]

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(iii) Identify **one** safety procedure that should be followed when working with electricity. [1]

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(iv) Explain a consequence of not working safely with electricity. [2]

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8. A brownfield site is being considered for a new residential development. There are a number of traditional stone-built, slate-roofed buildings on the site, which are to be demolished. The buildings are in a poor state, but the stones and slate tiles are generally in good condition.

(a) Explain the implications of the proposed demolition work in terms of waste disposal, re-use and recycling of materials.

(i) Waste disposal [2]

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(ii) Re-use of materials [2]

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(iii) Recycling of materials [2]

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(b) The owners of the site have appointed an architect and quantity surveyor to help with the new development.

(i) Describe the role of the architect. [2]

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(ii) Describe the role of the quantity surveyor. [2]

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(c) In addition to construction professionals, the development will also require many trades.

State **two** activities associated with each of the following trades:

(i) Plumbers

Activity 1 [1]

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Activity 2 [1]

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(ii) Electricians

Activity 1 [1]

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Activity 2 [1]

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9. The new residential development discussed in question 8 is to rely on renewable energy.

Discuss the main benefits and limitations of the renewable energy technologies that could be used. [10]

END OF PAPER

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

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