Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson BTEC Level 1/Level 2 First Award

Centre Number | Learner Registration Number

Thursday 9 January 2020

Morning (Time: 1 hour 15 minutes) | Paper Reference **21492E**

Construction and the Built Environment

Unit 1: Construction Technology

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
  – *you are allowed to use a non-programmable scientific calculator.*
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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Pearson

Answer ALL questions.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Low-rise buildings have performance requirements.

(a) Draw a line to match each material/component to its associated performance requirement.

Each material/component has only **one** performance requirement.

(2)

Material/Component	Performance requirement
	Weather resistance
Plasterboard layers	Stability
	Security
Flashings	Sound insulation
	Strength

(b) Identify **two** types of load that a building is designed to resist.

(2)

- ☒ **A** Aesthetic
- ☒ **B** Wind
- ☒ **C** Economic
- ☒ **D** Sustainable
- ☒ **E** Self-weight

(c) Name **two** materials from a traditionally built house that could be recycled when the building is demolished.

(2)

1 .....

.....

2 .....

.....

(d) Identify **two** types of sound insulation used within a building.

(2)

- ☒ **A** Triple glazing
- ☒ **B** Timbering
- ☒ **C** Guttering
- ☒ **D** Carpeting
- ☒ **E** Mood boards

(e) Identify **two** locations in a building where sound insulating materials can be placed to reduce the passage of sound.

(2)

- ☒ **A** Chimney
- ☒ **B** Floor
- ☒ **C** Lighting
- ☒ **D** Excavations
- ☒ **E** Wall

(Total for Question 1 = 10 marks)

2 Temporary roads and hard standing areas are features shown on a site layout plan.

Name **two** other features shown on a site layout plan.

(2)

1 .....

.....

2 .....

.....

(Total for Question 2 = 2 marks)

3 Name **one** type of internal partition wall.

(1)

.....

.....

(Total for Question 3 = 1 mark)

4 Diagram 1 shows a section through a foundation.

Label the **four** materials/components of the foundation shown in Diagram 1.

(4)

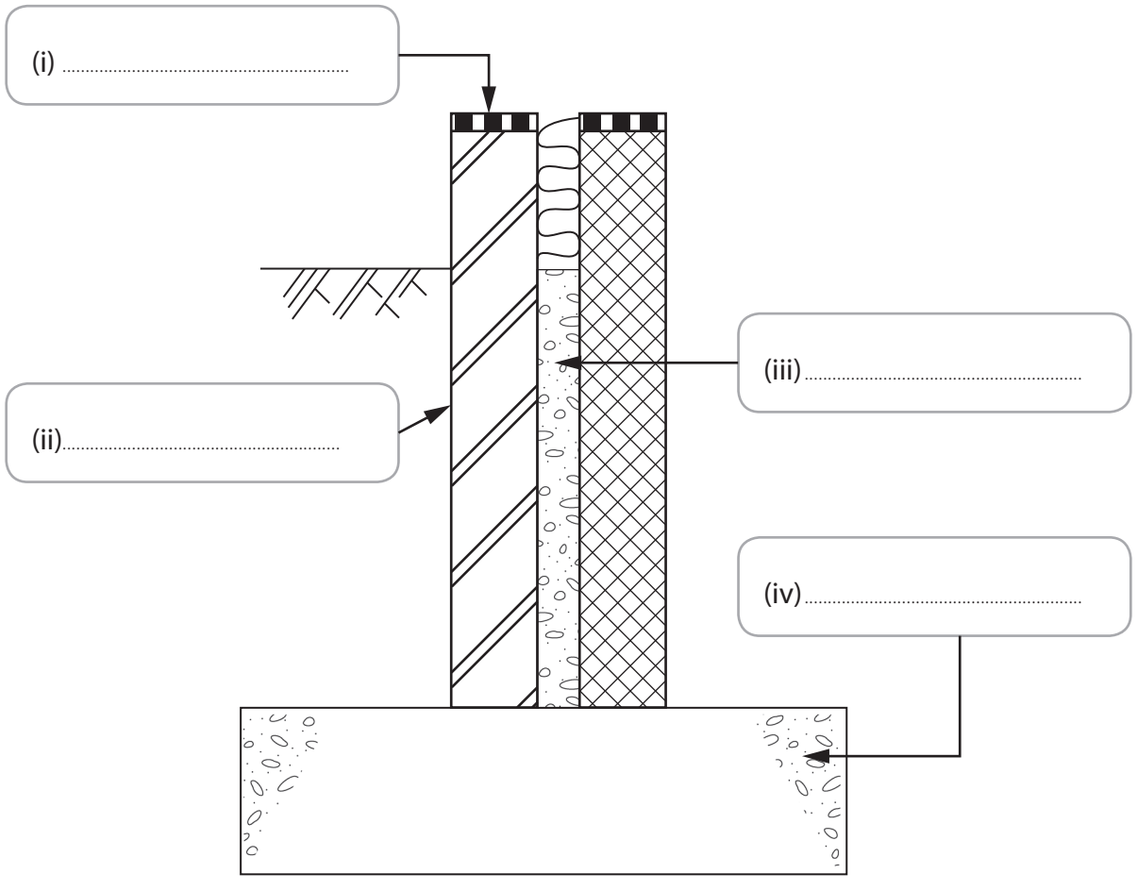

Diagram 1

(Total for Question 4 = 4 marks)

5 Sketch a cross-section through a raft foundation supporting a cavity wall.

You should annotate your diagram.

(5)

(Total for Question 5 = 5 marks)

6 Explain **one** advantage and **one** disadvantage of a strip foundation.

(4)

Advantage

Disadvantage

(Total for Question 6 = 4 marks)

7 (a) Give **one** function of a wall opening.

(1)

(b) Name **one** component of a wall opening.

(1)

(Total for Question 7 = 2 marks)

8 (a) Straw bales are used in sustainable construction.

Name the building element that straw bales are used to construct.

(1)

.....

.....

(b) Explain **two** reasons why the use of straw bales is a sustainable form of construction.

(4)

1 .....

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2 .....

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(Total for Question 8 = 5 marks)

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9 A trench is going to be excavated for a drainage pipe. The trench will be 40 m long, 0.6 m wide and 2.4 m deep.

Calculate the volume of excavated material.

(2)

..... m^3

(Total for Question 9 = 2 marks)

10 Explain **two** benefits of using eco-joists instead of solid timber joists for the construction of the upper floors of a low-rise building.

(4)

1 .....

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2 .....

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.....

(Total for Question 10 = 4 marks)

11 An inner city industrial site has been abandoned and is contaminated. A developer is proposing to build houses on this site.

Explain the advantages and disadvantages of developing the project on this brownfield site.

(6)

(Total for Question 11 = 6 marks)

12 Discuss why a housing developer might use timber frame construction rather than traditional cavity wall construction.

(6)

(Total for Question 12 = 6 marks)

13 A developer is proposing to build a two-storey office block. Properties nearby have pitched roofs.

The developer is considering two different types of roof:

- pitched roof with interlocking tiles
- flat roof with built up felt.

Discuss the advantages and disadvantages of each of these roof types.

(9)

(Total for Question 13 = 9 marks)

TOTAL FOR PAPER = 60 MARKS

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