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 10 January 2019

Morning (Time: 1 hour) | 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.
- **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 50.
- 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 Buildings are designed to meet performance requirements.

(a) Draw a line to match each performance requirement to how it is achieved in a building project.

Each performance requirement has only **one** way it is achieved.

(2)

Performance requirement	How it is achieved
Strength	Use of stress graded structural timber
	Provision of ventilation
	Use of fire-resistant paint
Sustainability	Installation of site accommodation
	Minimising construction waste

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

(b) Name **two** locations in a building where insulation material can be placed to reduce heat loss.

(2)

(i) .....

.....

(ii) .....

.....

(c) Identify **two** types of sound insulation.

(2)

- ☒ **A** Tile battens
- ☒ **B** Metal stud
- ☒ **C** Plasterboard layers
- ☒ **D** Flooring mats
- ☒ **E** Ventilation ducts

(d) Identify **two** types of load that buildings are designed to resist.

(2)

- ☒ **A** Dead
- ☒ **B** Economic
- ☒ **C** Aesthetic
- ☒ **D** Compound
- ☒ **E** Dynamic

(Total for Question 1 = 8 marks)

2 Complete the table to show the risk and control measure associated with water in a deep trench.

An example hazard, risk and control measure are shown to guide you.

(2)

Hazard	Risk	Control Measure
Damage to gas service pipes	Asphyxiation, explosion	Locate underground services
Water in a trench		

(Total for Question 2 = 2 marks)

3 Identify **two** site set-up activities that are required before construction work starts.

(2)

- ☒ **A** Roof finishes
- ☒ **B** Temporary lighting
- ☒ **C** Foundation excavations
- ☒ **D** Site accommodation
- ☒ **E** Wall-tie spacing

(Total for Question 3 = 2 marks)

4 (a) Identify **one** statement below that **best** describes a strip foundation.

(1)

- ☒ **A** It is often used in house construction
- ☒ **B** It is used for high-rise buildings
- ☒ **C** It is expensive to construct
- ☒ **D** It is used when soil is weak

(b) Diagram 1 shows a section through a pile foundation.

Label the **five** parts of the foundation shown in Diagram 1.

(5)

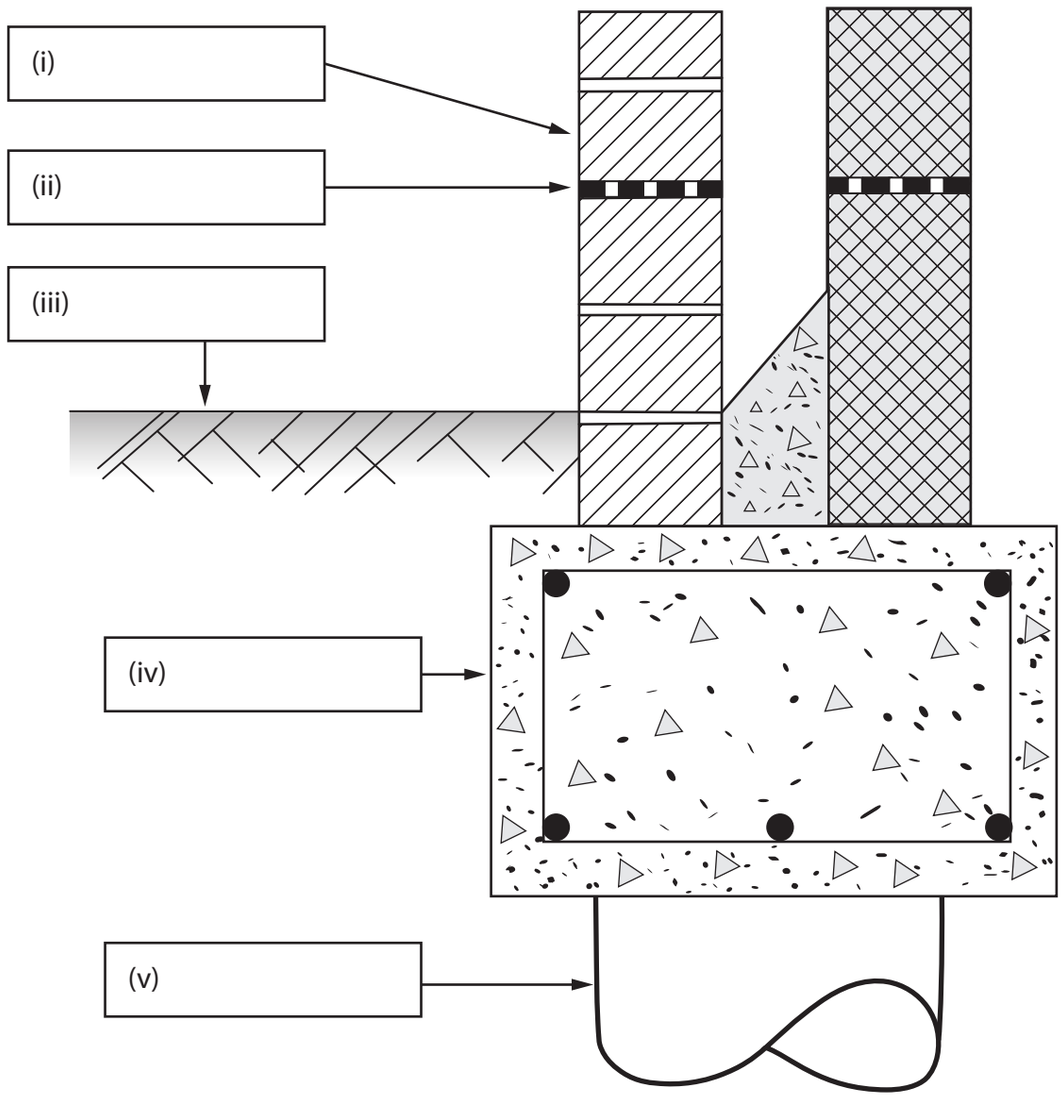

Diagram 1

(Total for Question 4 = 6 marks)

5 Sketch a diagram of a cross-section through a timber upper floor supported by joist hangers.

You should annotate your diagram.

(4)

(Total for Question 5 = 4 marks)

6 One sustainable method of construction is to minimise waste.

Give **two** other sustainable methods of construction.

(2)

(i) .....

.....

(ii) .....

.....

(Total for Question 6 = 2 marks)

7 Explain **two** advantages of a raft foundation.

(4)

(i) .....

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(ii) .....

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(Total for Question 7 = 4 marks)

8 Explain **two** benefits to the community of a developer building on a brownfield site.

(4)

(i) .....

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.....

(ii) .....

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.....

(Total for Question 8 = 4 marks)

9 Explain **two** advantages for a developer of using a flat roof instead of a pitched roof for a new two-storey apartment block.

(4)

(i) .....

.....

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.....

(ii) .....

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(Total for Question 9 = 4 marks)

10 Explain **one** reason why a traditional cavity wall is less sustainable than modern forms of construction.

(2)

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.....

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(Total for Question 10 = 2 marks)

11 Explain **two** disadvantages for a developer of using a prefabricated concrete cross-wall form to build a two-storey apartment block.

(4)

(i) .....

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.....

(ii) .....

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(Total for Question 11 = 4 marks)

12 A local council is planning to build a large housing estate.

Two forms of wall construction are being considered:

- traditional cavity walls
- structural insulated panels (SIPs).

Discuss the advantages and disadvantages of traditional cavity walls compared to structural insulated panels (SIPs) for this project.

(8)

(Total for Question 12 = 8 marks)

TOTAL FOR PAPER = 50 MARKS

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