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Centre Number					Learner Registration Number				
Pearson BTEC Level 1/Level 2 First Award					<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>				
<h1>Construction and the Built Environment</h1> <h2>Unit 1: Construction Technology</h2>									
Wednesday 17 May 2017 – Morning Time: 1 hour					Paper Reference 21492E				
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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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 and constructed to meet performance requirements.

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

(2)

Performance requirement	How it is achieved
<input type="checkbox"/> Fire protection	<input type="checkbox"/> Use of a sprinkler system
<input type="checkbox"/> Weather resistance	<input type="checkbox"/> Installation of acoustic ceilings
	<input type="checkbox"/> Use of renewable materials
	<input type="checkbox"/> Installation of joists
	<input type="checkbox"/> Use of falls

(b) Name **two** tests used to measure the properties of concrete.

(2)

1

2

(c) Name **one** method used to stress grade structural timber.

(1)

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(Total for Question 1 = 5 marks)

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2 Give **two** types of site-based preconstruction clearance activity.

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(Total for Question 2 = 2 marks)

3 (a) Identify **two** functions of a floor.

(2)

- A To reduce condensation
- B To provide accommodation of services
- C To reduce the need for control measures
- D To provide a level surface
- E To provide natural light

(b) Identify **two** types of floor finish.

(2)

- A Screed
- B Cellulose
- C Chipboard
- D Foam
- E Purlin

(Total for Question 3 = 4 marks)

4 Identify **two** types of pointing used in facing brickwork.

- A Recessed
- B Fascia
- C Eaves
- D Threshold
- E Flush

(Total for Question 4 = 2 marks)



- 5 Sketch a diagram of a cross-section through a beam and block ground floor.
You should annotate your diagram.

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(Total for Question 5 = 4 marks)



6 Diagram 1 shows a cross-section detail of a timber frame wall.

Label the **five** components of the timber frame wall shown in Diagram 1.

(5)

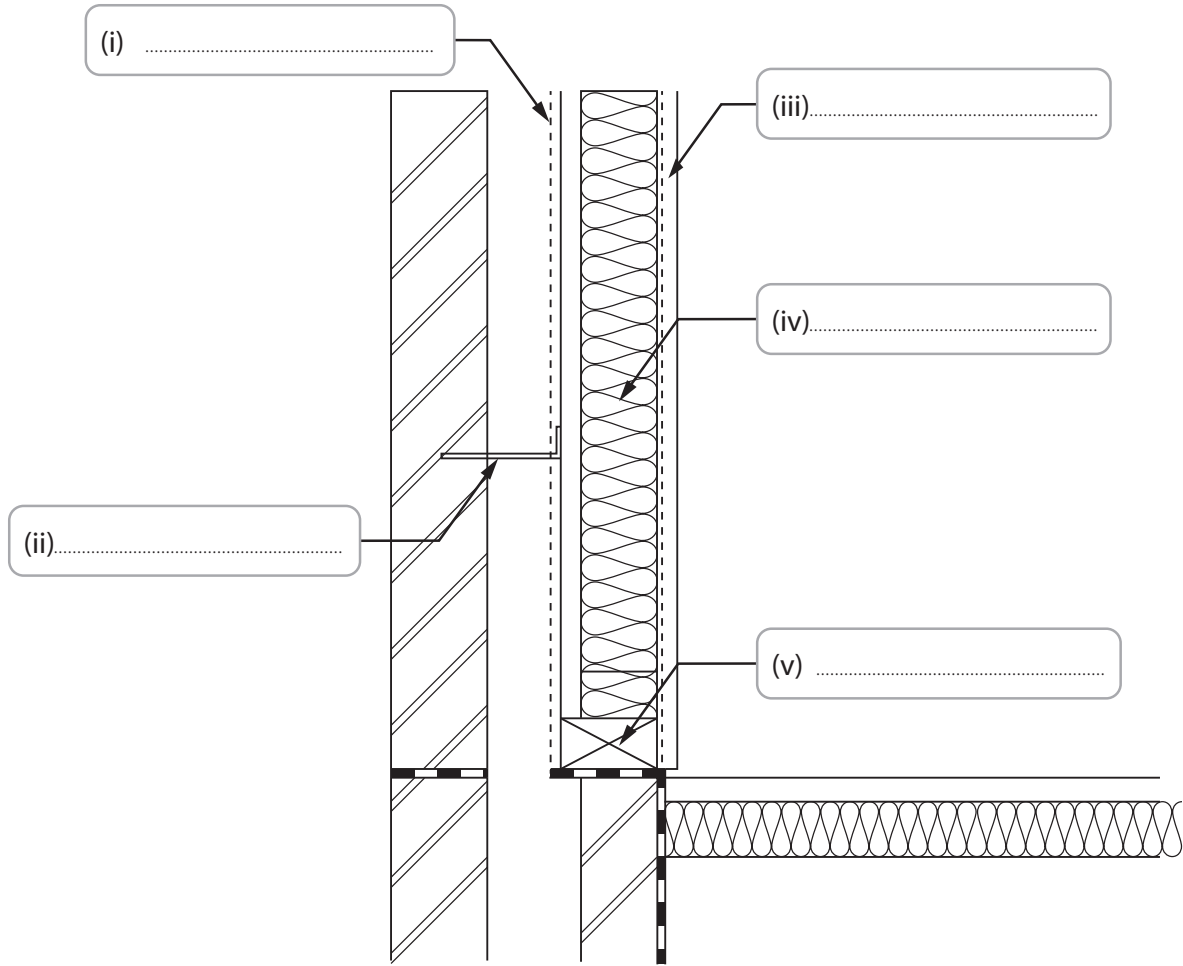


Diagram 1

(Total for Question 6 = 5 marks)



P 4 8 2 7 7 A 0 5 1 2

7 An architect is designing a series of low-rise apartment blocks. The architect is keen to adopt sustainable methods wherever possible.

Explain **two** sustainability-related advantages of structural insulated panels (SIPs)

1

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(Total for Question 7 = 4 marks)

8 A fast food company intends to build a number of new restaurants.

The restaurants will be of a prefabricated structural form and delivered to site ready for erection.

Explain **two** economic advantages for the fast food company of using a prefabricated structural form to build the restaurants.

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(Total for Question 8 = 4 marks)

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9 (a) Identify **two** types of roof construction.

(2)

- A** Relief covering
- B** Double pitch
- C** High rise
- D** Lean-to
- E** Eco-joist

(b) A homeowner wants to have a detached double garage built and is considering different options for the roof.

Explain **one** maintenance benefit of a hipped roof compared to a flat roof for the garage.

(2)

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(Total for Question 9 = 4 marks)

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10 Ground conditions can affect the choice of foundation for a building.

(a) Explain **two** reasons why a builder is unlikely to use a raft foundation for a house on sloping ground.

(4)

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2

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(b) An architect is designing a low-rise office building. A site investigation has indicated that the ground conditions consist of low bearing capacity soil.

Explain **two** reasons why a pile foundation would be more suitable than a strip foundation on low bearing capacity soil.

(4)

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(Total for Question 10 = 8 marks)

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QUESTION 11 BEGINS ON THE NEXT PAGE



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(Total for Question 11 = 8 marks)

TOTAL FOR PAPER = 50 MARKS



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