

Write your name here	
Surname	Other names
Edexcel BTEC Level 1/Level2 First Award	Centre Number Learner Registration Number
Construction and the Built Environment Unit 1: Construction Technology	
Wednesday 16 May 2018 – 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 built to meet performance requirements.

(a) Identify **two** reasons why lateral and vertical restraint are important in the design of buildings.

(2)

- ☐ **A** To resist uplift from wind
- ☐ **B** To prevent the passage of sound
- ☐ **C** To resist the spread of the walls
- ☐ **D** To prevent water penetration
- ☐ **E** To improve a building's sustainability

(b) Name **two** fire resistant materials used in a building.

(2)

1

2

(Total for Question 1 = 4 marks)

2 Building projects involve various stages of construction.

(a) Identify **two** features included on a site layout plan.

(2)

- ☐ **A** Binders
- ☐ **B** Compounds
- ☐ **C** Skirtings
- ☐ **D** Welfare facilities
- ☐ **E** Cavity closers



(b) Identify **two** services that require protection during excavation works.

(2)

- ☐ **A** Gas
- ☐ **B** Signs
- ☐ **C** Plant
- ☐ **D** Roads
- ☐ **E** Electricity

(c) Name **two** types of earthwork support.

(2)

1

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2

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(d) Name **two** types of foundation used in construction.

(2)

1

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2

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(e) Risk assessments need to be written before construction work starts.

Identify **one** risk associated with working in a confined space.

(1)

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(Total for Question 2 = 9 marks)



P 5 3 1 1 7 A 0 3 1 2

- 3 Explain **one** reason why an architect would consider a building's orientation in order to contribute to its sustainability.

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(Total for Question 3 = 2 marks)

- 4 Explain **one** reason why British Standards are used when specifying construction materials.

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(Total for Question 4 = 2 marks)

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5 Sketch a cross-section through a suspended timber ground floor.

You must annotate your sketch.

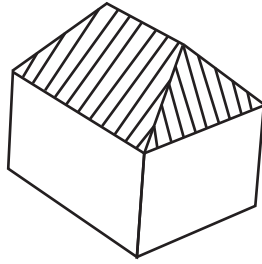
(Total for Question 5 = 5 marks)



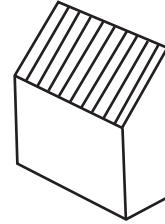
P 5 3 1 1 7 A 0 5 1 2

6 Diagram 1 shows four different types of roof.

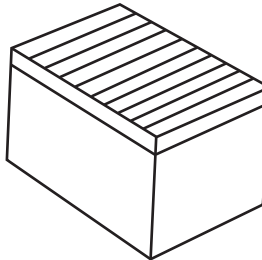
Name the **four** different types of roof shown in Diagram 1.



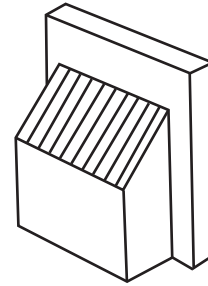
(i)



(ii)



(iii)



(iv)

Diagram 1

(Total for Question 6 = 4 marks)

7 Explain **one** reason why cellulose is a more sustainable insulation material than foam.

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(Total for Question 7 = 2 marks)



8 Engineered joists can be used instead of solid timber joists in new buildings.

Explain **two** disadvantages of solid timber joists compared to engineered joists.

1

2

(Total for Question 8 = 4 marks)

9 Explain **two** economic benefits of a pitched roof for a house compared to a flat roof.

1

2

(Total for Question 9 = 4 marks)



P 5 3 1 1 7 A 0 7 1 2

10 Identify **two** external finishes used for structural insulated panels (SIPs).

- ☐ **A** Plasterboard
- ☐ **B** Sheep's wool
- ☐ **C** Timber cladding
- ☐ **D** Bitumen
- ☐ **E** Brickwork

(Total for Question 10 = 2 marks)

11 Explain **two** advantages of metal stud partitions compared to timber stud partitions.

1

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(Total for Question 11 = 4 marks)

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QUESTION 12 BEGINS ON THE NEXT PAGE



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12 A developer is experiencing an increase in demand for affordable homes and rental accommodation. The developer intends to build a large residential estate and is considering two types of construction form:

- timber framed
- pre-cast concrete cross-wall.

Discuss the advantages and disadvantages of each construction form for the proposed residential development.

(8)

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(Total for Question 12 = 8 marks)

TOTAL FOR PAPER = 50 MARKS



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