Construction

Identify **two** preconstruction stage legal requirements.

**A** Informing the Health and Safety Executive (HSE)

**B** Reduction in construction wastage

**C** Prefabrication of elements

**D** Designing for functionality

**E** Risk assessments

**(Total for Question 1 = 2 marks)**

**2** The installation of site accommodation is a site-based preconstruction activity carried

out at the set-up stage.

Name **two** other site set-up activities required before construction work begins.

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**(Total for Question 2 = 2 marks)**

**3** (a) Identify **two** fire-resistant materials. (2)

**A** Plasterboard

**B** Blockwork

**C** Bitumen

**D** Timber

**E** Straw

(b) Buildings are insulated in order to reduce heat loss.

Identify **two** locations where thermal insulation may be installed. **(2)**

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The diagram shows a structural form used in the construction of low-rise buildings. **(1)**

Identify this structural form.

 **A** Internal partitions

**B** Timber frame

**C** Cavity wall

**D** Cross-wall

Name **two** types of pointing used in facing brickwork.

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**(Total for Question = 2 marks)**

There are many hazards associated with sub-structure groundwork activities, such as

damaging existing underground services. Identify **two** other hazards associated with sub-structure ground works. **(2)**

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To enable construction work to start, existing services need to be located and protected. Explain **two** ways to locate existing underground electric cables. **(4)**

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Name **one** method used to permanently control sub-soil water. **(1)**

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Diagram 1 shows a sub-structure detail of a suspended timber ground floor. Label the components of the suspended timber ground floor shown in Diagram 1.

**Diagram 1**

**(Total for Question 6 = 4 marks)**



One purpose of sound insulation is to resist the passage of sound through a building. Identify **two** other purposes of sound insulation for a building. **(2)**

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 Describe **one** benefit of using sheep’s wool in construction projects. **(2)**

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Sketch a diagram of a cross section through a timber flat roof construction form. You should annotate your diagram

Accept fill patterns in place of annotation – one mark for each

label or fill pattern:

1 mark for stone chippings/solar reflective paint

1 mark for three layer built up roofing felt/single ply membrane

1 mark for decking

1 mark for firring (piece)/laser cut insulation

1 mark for joist (falls could also be achieved by sloping joists, tapered joists, firrings across the joist run and reducing firrings)

1 mark for insulation /fill pattern

1 mark for vapour barrier/fill pattern

1 mark for plasterboard

1 mark for soffit

1 mark for fascia/verge

1 mark for wall plate

1 mark for holding down strap

1 mark for drip

1 mark for waterstop/watercheck

1 mark for triangular

A low-rise building project is taking place on a brownfield site.

(a) Explain **one** benefit to the environment of recycling the bricks from the brownfield site as hardcore for the new building. **(2)**

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(b) Define the term embodied energy. **(1)**

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(c) Explain **one** way in which each of the methods below can contribute towards a building’s sustainability.

**(4)**

Building orientation

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Prefabricated elements

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Explain **two** reasons why high-density blockwork is used in walls where sound insulation is required.

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**(Total for Question = 4 marks)**

Sections of a new build office building will be rented to different businesses. The internal partitions will be constructed using metal studs. Explain **two** reasons why metal studs are suitable for this office building.

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**(Total for Question 10 = 4 marks)**

*ABC Housing Developments* currently uses a traditional brick cavity wall structural form for all its housing projects. It is experiencing an increase in demand for its homes and would like to respond quickly. *ABC Housing Developments* is considering changing the structural form of its housing to timber frame construction.

Evaluate whether this change of structural form is the best way for *ABC Housing Developments* to meet the increase in demand quickly.

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**(Total for Question = 8 marks)**



(Complete the sentence about slump tests.

Context : Performance requirements



A slump test is used to measure a property of: **(1)**

**A** steel

**B** concrete

**C** mortar

**D** hardcore

Complete the sentence about stress grading. Stress grading indicates the strength of: **(1)**

**A** mortar

**B** blocks

**C** bricks

**D** timber

a) Identify **two** temporary earthwork support methods used to prevent the collapse of the sides of an excavation. Pick two answers **(2)**

**A** Joists

**B** Wall-tie spacing

**C** Timbering

**D** Steel trench sheets

**E** Skirtings

(b) Identify **one** method used for the temporary control of surface water in excavations. **(1)**

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**(Total for Question 2 = 3 marks)**

Before construction works start, activities will take place in the office (desk-based) and on site (site-based).

Match the type of preconstruction work to its activity. Draw a straight line to match each type of preconstruction work to the appropriate activity. **Each** type of preconstruction work has only **one** activity.



One function of a wall is to reduce sound transmission. Identify **two** other functions of a wall. **(2)**

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(b) Outline the function of a lintel.

**(1)**

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(c) Identify **two** types of wall finishes that could be used on a building. Put a cross in **two** boxes to indicate your answers. **(2)**

**A** Metal stud

**B** Rendered blockwork

**C** Bitumen felt

**D** Facing brickwork

**E** Mineral wool

**(Total for Question 4 = 5 marks)**

***Q5***  *XYZ Homes* is a building contractor. During the excavation of foundations on a large housing development site an *XYZ Homes* employee cut into an underground power cable. Explain **two** measures that *XYZ Homes* could have put in place to reduce the risk of damaging underground power cables.

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**(Total for Question 5 = 4 marks)**



Solid ground floors are often used in low-rise buildings as they can be constructed in a short period of time.

Explain **two** other advantages of a solid ground floor in a low rise-building.

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**(Total for Question 8 = 4 marks)**

Engineered timber joists are often used in the construction of the upper floors of low-rise buildings.

Explain **two** benefits of using engineered timber joists in the construction of the upper floors of low-rise buildings.

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**(Total for Question 9 = 4 marks)**

**10** Explain **one** reason why timber frame housing is a sustainable form of construction.

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**(Total for Question 10 = 2 marks)**

