

Qualification title: Level 3 Technical Diploma in Bricklaying (7905-30)

Test title: 7905-501 & 001 L3 Diploma in Bricklaying -Theory exam

Version: April 2017

Base mark: 70

Mark Scheme

1

What type of information does Building Information Modelling (BIM) provide a contractor with?

- a) Risk assessments.
- b) Procurement costs.
- c) Method statement.
- d) Three-dimensional layout.

Key: D

2

Who is responsible for the implementation of the CDM regulations on a construction project?

- a) Sub contractor.
- b) Principal contractor.
- c) Quantity surveyor.
- d) Site manager.

Key: B

3

Which external authorised personnel would check that construction work conforms to regulations?

- a) Health and safety officer.
- b) Principal contractor.
- c) Building control officer.
- d) Specialist contractor.

Key: C

4

Which document is used to plan the duration of a project?

- a) Risk assessment.
- b) Job specification.
- c) COSHH sheet.
- d) Gantt chart.

Key: D

5

What is the **main** advantage of using steel reinforcement in concrete?

- a) Increases tensile strength.
- b) Reduces setting time.
- c) Increases compressive strength.
- d) Acts as formwork.

Key: A

6

What is the terminology given to the indicated section in Figure 1?

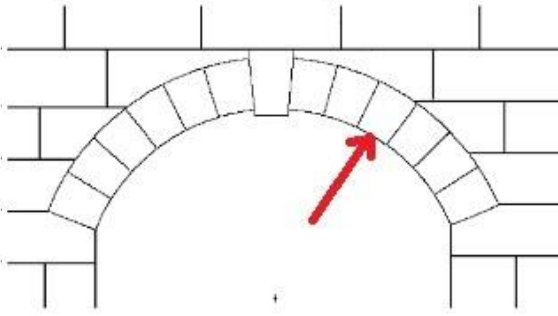


Figure 1

- a) Springing point.
- b) Intrados.
- c) Striking point.
- d) Extrados.

Key: B

7

What can be used to construct an arch **without** using temporary support?

- a) Prop.
- b) Lintel.
- c) Brace.
- d) Strut.

Key: B

8

What is the decorative feature shown in Figure 2?



Figure 2

- a) Dentil course.
- b) Plinth course.
- c) Ramped course.
- d) Oversailing course.

Key: B

9

What would be the **best** material to strengthen a hollow brick pier?

- a) Wall ties.
- b) Mortar.
- c) Concrete.
- d) Brick rubble.

Key: C

10

What is the **minimum** distance a superimposed hearth should be extended from the face of the breast?

- a) 200 mm.
- b) 300 mm.
- c) 400 mm.
- d) 500 mm.

Key: B

11

Identify **three** inspections the Building Control Officer carries out during the construction of the substructure of a building. (3 marks)

Answers

Answer could include any **three** of the following for **three** marks, **one** mark each

- Excavation for foundation.
- Foundation concrete.
- Over site concrete.
- DPC (membrane).
- Drainage.

12

Describe differences between a method statement and a permit to work, giving an example when **each** would be used. (5 marks)

Answers

Description could include any of the following for **three** marks, **one** mark for each

Method statement gives a clear description of how the work will be carried out, details dangers and risks and methods of control to be established.

A permit to work system is a formal written system used to control certain types of work that are potentially hazardous.

Examples

One example each for **two** marks, **one** mark for each

Method statement is used to provide a step by step process for a job such as chimney repointing.

And

Permit to work is used to support working when in a confined space.

A permit to work can be used for tasks involving hot works.

13

Identify **four** defects that could be caused by water leaking from a defective down pipe. (4 marks)

Answer

Answer could include any **four** of the following for **four** marks, **one** marks for each.

- Efflorescence.
- Staining.
- Spalling.
- Wet rot.
- Damp penetration.
- Perished brickwork.
- Flaking plaster.

14

Explain what safety checks is required prior to using portable disc cutter, giving reasons for each check. (6 marks)

Answer

Explanation could include any **six** of the following for **six** marks, with reasons for each check answer

- Guard cover
- Fuel level
- Checks on the body of the machine
- Checks on cables
- Checks on voltage
- Blade suitability
- Blade condition
- Speed of machine
- Cleanliness of filter
- Oil levels
- Pins on plugs

15

Identify the term that relates to each of the following

- | | | |
|----|---|----------|
| a) | centre brick of an axed arch | (1 mark) |
| b) | the angled brickwork from which a segmental arch turns | (1 mark) |
| c) | the temporary framework that supports an arch during construction | (1 mark) |
| d) | the name of an individual arch brick. | (1 mark) |

Answer

One mark for **each** of the following

- | | |
|----|-------------------------|
| a) | Key brick |
| b) | Skewback |
| c) | Turning piece or centre |
| d) | Voussior. |

16

Explain how to set out a semi-circular arch with a span of 1.2 m and a face depth of 0.225 m. (6 marks)

Answer

Explanation to cover any **six** of the below for **six** marks, including justifications/ causal relationships etc

- Determine baseline of 1.2 m.
- Find the centre of the baseline by measuring or bisecting the baseline.
- Draw the intrados of the semicircle.
- Measure an additional 0.225 m either side of the baseline.
- Draw the extrados of the semicircle.
- Mark on position of the key brick.
- Traverse the arch to establish the size of the voussoirs.
- Draw the voussoirs on the face of the arch.

17

Give **two** examples of where **each** of the following would be used

- a) Dentil course. (2 marks)
- b) Oversailing course. (2 marks)
- c) Soldier course. (2 marks)
- d) Tumbling in. (2 marks)
- e) Plinth course. (2 marks)

Answer

Two examples each, indicating where each would be used, **one** mark per example, up to a maximum of **ten** marks, **two** marks for each

- a) Feature on a garden wall, gable, parapet, eaves level
- b) Feature on a garden wall, gable, parapet, eaves level, chimney stacks, pier capping
- c) Above and below openings and windows, band course, string course around a building, top of a garden wall
- d) Reducing chimney breasts, buttresses, retaining walls
- e) Reduce thickness of walls, windows, doors, boundary walls, increase thickness of walls

18

- a) Name **two** types of bricks that can be used to form an obtuse quoin on a boundary wall. (2 marks)
- b) Identify **two** examples of where obtuse angles are used in brickwork. (2 marks)

Answers

- a) Answers as stated for **one** mark each
- Squint
 - Dogleg.
- b) Answer could include any **two** of the following for **two** marks, **one** mark for each
- Conservatories
 - Boundary walls
 - Bay windows
 - Gable end.

19

- a) Identify **two** hazards associated with working on chimney breasts, flues and stacks. (2 marks)
- b) Explain how to reduce the risks associated with **each** hazard identified in a). (4 marks)

Answer

- a) Answer could include any **two** of the following for **two** marks
- Slips
 - Trips
 - Falls
 - falling material
 - lifting material
 - working at heights
 - abrasive wheels
 - lifting equipment etc.
 - Gases/fumes.
- b) Explanation detailing how to reduce the risks posed by each hazard the candidate identified in part a), up to **four** marks.

A client has requested that you carry out some decorative alterations to their chimney breast and fireplace in preparation for their installation of a log burner. They would like you to cut out a corroded metal plate lintel that forms the fire opening and replace it with a brickwork arch that would form a new feature for the opening.

Discuss how to carry out the task.

(12 marks)

Answer

Indicative content

- Carry out and prepare a risk assessment of the existing chimney breast and surround.
- Prepare a method statement for the task, identifying appropriate stages of safety.
- Prepare suitable tools and equipment for the task, including:
 - hammer
 - chisels
 - angle grinder
 - trowel
 - level
 - strongboy/ props
 - arch centre
 - bricks
 - mortar
 - folding wedges
 - slate
- Equip with PPE
- Remove plaster and expose existing brickwork
- Install a strongboy or suitable supports/ props to take the weight above the opening
- Cut out old metal plate lintel
- Cut out brickwork to receive the new arch
- Determine measurements to establish centre line/ span/ rise
- Prepare/ make a wooden arch template
- Set up arch template with folding wedges
- Set up skewbacks
- Turn brick arch
- Fill in at the top of the arch with slate and make good all joints and surroundings
- Clean up and dispose of all debris in a skip or suitable waste container.

Band 1 (1 – 4 marks)

Response is basic and shows limited understanding of the tasks needed to be carried out. Does not list sequence of construction, tools, materials and finishes. No discussion of safety implications or removal of waste material. Misinterpretation of task lacking understanding.

In order to access higher marks, sequence of construction, tools, materials and finishes provided with inadequate/unclear details.

Band 2 (5 – 8 marks)

Response shows some understanding of the tasks needed to be carried out to. Provides some details of sequence of construction, tools, materials and finishes, but does not make links between them. Basic safety implications and removal of waste material taken into consideration.

In order to access higher marks, provides adequate details of the sequence of construction, tools, materials and finishes with some discussion of links between them.

Band 3 (9 – 12 marks)

Response shows good understanding of the tasks needed to be carried out.

Evaluates and analyses sequence of construction, tools, materials and finishes by discussing advantages and disadvantages. Adequately discusses links between them. Makes a recommendation but without justification. Shows good understanding of safety implications and methods for removal of waste material.

To access higher marks

In order to access higher marks, the response will include strong attention to detail through a cohesive and thorough discussion. Response shows clear understanding of the integration of building components. Incorporates and justifies recommendation.