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City & Guilds

6720-544 JUNE 2018
Level 3 Advanced Technical Diploma in Constructing the Built Environment (Design and Planning) (540)

Level 3 Constructing the Built Environment – Theory exam

If provided, stick your candidate barcode label here.

Thursday 21 June 2018
09:30 – 12:30

Candidate name (first, last)

First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Gender (M/F)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

- If any additional answer sheets are used, enter the additional number of pages in this box. ➡ 0 0
- Please ensure that you **staple** additional answer sheets to the **back** of this answer booklet, clearly labelling them with your full name, enrolment number, centre number and qualification number in BLOCK CAPITALS.
- All candidates need to use a **black/blue pen. Do not** use a pencil or gel pen.
- If provided with source documents, these documents **will not** be returned to City & Guilds, and will be shredded. **Do not** write on the source documents.

***I declare that I had no prior knowledge of the questions in this assessment and that I will not divulge to any person any information about the questions.**

You should have the following for this examination
- a pen with blue or black ink

General instructions
This question paper is the property of City and Guilds of London and should be returned after the examination.
- This examination contains **25** questions. Answer **all** questions.
  - Answer the questions in the space provided.
  - The marks for **each** question are shown in brackets.
- Show **all** calculations.

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1 Name **two** secondary building elements commonly found in domestic properties. (2 marks)

2 Describe what is meant by the term 'security' in terms of the performance requirement of buildings. (2 marks)

3 Name **two** components of a suspended ceiling. (2 marks)

4 Name the type of foundation that is a large concrete slab which covers all of the ground under a building. (1 mark)

5 State **two** disadvantages of traditional methods of construction. (2 marks)

6 Explain how Energy Performance Certificates (EPCs) are used to support improvements to the energy performance of domestic buildings in the UK. (6 marks)

7 Explain why 'thin joint' construction techniques may be specified for masonry walls. (5 marks)

8 a) What is the term for concrete that is moulded, formed and cured in a controlled environment, transported to site and lifted into place? (1 mark)

b) What is the term for concrete that is poured into formwork on site, where it sets and hardens? (1 mark)

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9 Define the following terms as they apply to ground improvement techniques.

a) Consolidation. (1 mark)

b) Compaction. (1 mark)

10 Describe **one** advantage of a green roof. (2 marks)

11 a) Identify the type of floor shown in Figure 1. (1 mark)

Figure 1

b) Identify **one** advantage of this type of floor compared to a timber floor. (1 mark)

12 Explain why laminated timber may be specified for a portal framed beam. (4 marks)

13 Explain **one** benefit of using a deep strip foundation for an industrial building in good ground. (2 marks)

14 Explain why a monitor roof might be preferred to a traditional flat roof for a wide-span building. (6 marks)

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15 Name **two** groups of people, classified in a risk assessment, who could be placed at risk because of construction works. (2 marks)

16 Identify the term used to denote 'an unplanned event or occurrence, resulting in injury or damage'. (1 mark)

17 Describe the purpose of an on-site health and safety induction. (3 marks)

18 Explain why an experienced and qualified construction worker, who has a CSCS card, still needs to obtain a 'permit to work' for particular tasks on site. (4 marks)

19 Explain why weather conditions should be taken into account when performing risk assessments for on-site tasks. (4 marks)

20 Describe how the CDM regulations impact on the design considerations for a building. (2 marks)

21 State **four** design measures a designer can implement to assist in reducing the embodied energy of a building. (4 marks)

22 Describe how aesthetical considerations can impact on the design of a building. (2 marks)

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23 Explain how local authorities develop planning policies for their local area. (6 marks)

24 Explain the contractual relationship between client, contractor and contract administrator. (4 marks)

25 A construction company has purchased a large plot of land that was previously used for agricultural purposes. The intention is to construct a housing estate with a range of properties from single-bed starter homes up to larger four-bed family homes, and a low-rise discount supermarket, on the site.

The local authority has indicated that it will only approve projects that serve the local community and are aesthetically acceptable, sustainable, of low environmental impact, use modern methods of construction, and seek to reduce or eliminate accidents during the construction process.

a) Explain how the local authority can make decisions on the aesthetics of the project. (3 marks)

b) Summarise the documents used to help reduce risk on the site during construction. (3 marks)

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c) Discuss how the construction company will meet the requirements of the local authority. (12 marks)

End of examination