

Exam Questions for November 2022

CONSTRUCTION BUSINESS ENVIRONMENT

ANSWER ONLY 1 OF THE QUESTIONS. You are allowed 4 attachments. 1 must be the front cover sheet.

Q.1)

Refer to your drawings and scenario

Your multi-disciplined consultancy has been engaged as the Client's Project Manager to advise the Client before commencing the tender process for the construction of the Rehabilitation Centre.

The Client has asked your consultancy to assist in assessing the potential tenderers' level of awareness of the complex engineering and contamination challenges.

TASK:

The Client has asked your consultancy to prepare a report which specifically addresses the following: -

A) The most relevant and significant aspects of UK legislation and environmental concepts that the contractor must follow and explain why they are relevant to the project.

(20 Marks)

B) How the Client could monitor and evaluate the appointed contractor's compliance with the project's master programme. **(5 Marks)**

C) Briefly explain how the Client could help the appointed contractor to minimise the project's impact on the neighbouring community. **(5 Marks)**

OR

Q.2)

Refer to your drawings and scenario

The project is being carried out under a design and build contract.

Please state the form of contract you have chosen to answer this question

Progress on the project has fallen seriously behind the master programme which reflects the Contract Terms.

The groundworks operations have commenced, and remediation remains incomplete.

As the Client's Project Manager for the project, you have been asked to advise the Client on the options available to them under the contract and your recommendations.

TASK:

As the Client's Project Manager prepare a report, with recommendations, that identifies and explains the preferred options open to the Client along with the associated risks and potential outcomes under the contract. **(30 Marks)**

MANAGEMENT

ANSWER ONLY 1 QUESTION. You are allowed 4 attachments. 1 must be the front cover sheet.

Q.1)

Refer to your drawings and scenario

The principal contractor wants to maintain strict budgetary control for the project to ensure the project meets its targets.

TASK:

A) Describe how the budgets can be established and the key components of a budgetary system for the principal contractor. **(10 Marks)**

B) Explain how the budgets for construction operations of the core house can be used by the principal contractor to produce a cashflow forecast for this stage of the project. **(20 Marks)**

OR

Q.2)

Refer to your drawings and scenario

Effective control and co-ordination of sub-contract work will be an essential part of the centre development in terms of time, cost, and quality.

TASK:

Discuss how this may be achieved to ensure successful project delivery from the principal contractor's perspective. **(30 Marks)**

HEALTH, SAFETY AND WELFARE

ANSWER ONLY 1 QUESTION

You are allowed 4 attachments. 1 must be the front cover sheet.

Q.1)

Refer to your drawings and scenario

The Project is delayed, and the Client has requested partial possession of the development as the current service delivery location is not available after the original completion date.

It has been agreed that the Move on Flats will be handed over and a Practical Completion certificate issued when they are able to be occupied. It is envisaged that there will be minor works to complete as well as any snagging works.

TASK:

- A) Outline the specific hazards and related risks presented by this scenario (10 Marks)**
- B) Examine how the identified risks should be managed (20 Marks)**

OR

Q.2)

Refer to your drawings and scenario

Falls from height are a significant cause of injury and death on construction sites.

TASK:

Identify the activities within the project which will require working at height and with reference to legislation and best practice, explain how these activities will be carried out safely. (30 Marks)

CONSTRUCTION TECHNOLOGY

ANSWER ONLY 1 QUESTION

You are allowed 6 attachments. 1 must be the front cover sheet.

Q.1)

Refer to your drawings and scenario

TASK:

Prepare an illustrated technical report that describes and evaluates viable options for the following aspects of the development:

- A) An appropriate sub-structure for the Core House. **(6 Marks)**
- B) Sources of, and accommodation of, planned and predictable movement in the structure and fabric of the Core House. Features that should be present to prevent stresses and unpredictable random cracking in the finished building. **(12 Marks)**
- C) The connection of water and drainage services for the development to the existing mains. **(8 Marks)**
- D) Opportunities for the incorporation of volumetric modular construction in the Move-On Flats. **(4 Marks)**

OR

Q.2)

Refer to your drawings and scenario

Since the original conceptual design was developed, as shown on the drawings provided, the following events have occurred:

A shortage of available skilled bricklayers following the UK leaving the EU.

Substantial increase in the cost of mains gas and electricity.

Government financial incentives to encourage off site and modern methods of construction for publicly funded projects.

TASK:

As a design manager working for the contractor who has been awarded the contract to construct the project, prepare an illustrated report for the contractor's project manager that considers the various implications for the project of changing the proposed construction to drywall construction utilising a steel frame to transmit live and dead loads to the foundations. Your report should address the technical implications for these specific areas.

A) The construction of the Core House utilising framed construction rather than the original loadbearing masonry, and appropriate consideration of a suitable or revised foundation system. **(15 Marks)**

B) Strategies and options to increase on-site energy generation and conservation to reduce the reliance on mains gas and electricity. **(10 Marks)**

C) How adopting off site construction methods may increase the speed of construction and build quality of the completed Core House. **(5 Marks)**