



CEX7109 – Management of the Design Phase & Quality Control

FINAL EXAMINATION – 2011/2012

Time Allowed: Three Hours

Date: 2012 - 03 - 10 (Saturday)

Time: 1400 - 1700 hrs

Answer four (4) questions, selecting at least one (1) question from section B.

Please write the answers to SECTIONS A and B in TWO SEPARATE BOOKS.

Section A

Note: It is recommended that relevant field examples be used where necessary to clarify your answers.

Q1.

A client wishing to construct a good quality residential building complex for which the tendering is to be on Detailed Drawings and Bill of Quantities, is willing to have the time of completion adjusted to suit this option.

- (a). Provide a 'block diagram' to indicate the design stages of this project (i.e. project plan of work) up to the tender stage inter-relating the design stages and the evolution of the brief. (6 marks)
- (b). Discuss three objectives of the Conceptual Design stage and the investigations that need to be carried out at this stage. (10 marks)
- (c). Explain why the Scheme Design is 'frozen' after the Consolidated Brief is approved by the client and the steps that have to be taken for Brief Change Control. (9 marks)

Q2.

- (a). Explain what is meant by the Validation and Verification procedures that need to be adopted in design. (8 marks)
- (b). Explain why the timing of Design Reviews is important and briefly explain six of the criteria that should be established by the final review. (9 marks)
- (c). The ISO 9001 recommends a documented procedure for the Control of Documents. Discuss why this is essential for the design phase of a multi-disciplinary construction project and describe four of the procedures that you would adopt. (8 marks)

Q3.

- (a). Explain clearly what you understand by 'cost planning' and two methods of using it in the design phase to control the cost of a project. (8 marks)
- (b). Briefly explain three methods used in specifications for construction, fittings and equipment giving an example where each is appropriate. (9 marks)



- (c). Explain what you understand by 'Life cycle costing' and factors that you could make use of to gauge the environmental impact of a project. (8 marks)

Q4.

- (a). Explain two of the possible options in each of the following client requirements and the type of contract for design and/or construction that would be suitable in each case:
- (i). Financial Policy (4 marks)
 - (ii). Time policy (4 marks)
- (b). Explain the reasons for three main criteria considered in the ICTAD guidelines for grading and registration of contractors undertaking work. (9 marks)
- (c). Name and briefly describe four different forms of engagement of consultancy firms for projects, and the type of project that each would be suited for. (8 marks)

Section B

Q5.

- (a). Briefly describe the difference between 'quality control' and 'quality assurance' in construction work. (7 marks)
- (b). Discuss briefly three factors that adversely affect the quality of construction work. Illustrate your answer with suitable examples. (9 marks)
- (c). A 'quality system' should be properly documented so that every individual working in the organization knows what it is. List and briefly describe three main components of the documented quality system. (9 marks)

Q6.

- (a). Any contractor, who has implemented a 'quality management system' in his organization, needs to follow certain contract review activities during following stages. Briefly describe the review procedure in each case.
- (i). Prior to submission of a tender. (4 marks)
 - (ii). When a contract is awarded to the company and prior to accepting it. (4 marks)
- (b). As the Project Manager of a construction company with ISO 9001 certification it has been brought to your notice that the concrete used for concreting a few columns have not reached the specified characteristic strength. Based on the ISO procedure of dealing with non conformances state what action you can take to remedy this situation. (9 marks)
- (c). Keeping records according to the quality plan is an important aspect of a 'quality management system'. List and briefly describe four types of records an ISO 9000 certified company should maintain. (8 marks)

