



CEX7109 - Management of the Design Phase & Quality Control

FINAL EXAMINATION - 2010/2011

Time Allowed: Three Hours

Date: 2011 - 04 - 02 (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). Discuss and compare the time and financial criteria, and the consultancy work required for design and project completion, if the client in consultation with the project manager opt for the following type of procurement:

- (i). Contract procurement by open tender based on fully detailed drawings and BOQ.
- (ii). Design and Build contract.

(10 marks)

(b). Discuss the procedure you would follow and the evaluation criteria you would adopt for selection of the Consultant for a prestigious building project in a large city in the south east coast. (8 marks)

(c). Discuss the criteria considered in the ICTAD guidelines for grading and registration of contractors undertaking work in your field of engineering. (7 marks)

Q2.

(a). Briefly explain what you understand by 'comparative cost planning' and discuss its use in improving the overall quality of a project, where quality includes conformity with defined requirements and customer satisfaction. (8 marks)

(b). Discuss the topics that should be presented, discussed and recorded at a Design Review to ensure the quality of a project. (9 marks)

(c). Discuss the necessity for establishing a system of communication and document control in the design stage of a project and three steps that should be taken by the design team leader to implement this. (8 marks)

Q3.

(a) (i). Discuss the evolution of the consolidated brief, the information it should contain and its objectives. (10 marks)

(ii). Explain what you understand by the "design freeze" and "change management". (7 marks)



- (b). Discuss the possible reasons why unit rates of items tendered by a bidder may vary substantially from the unit rate given in the consultant's final cost estimate and action you may take in evaluation. (8 marks)

Q4.

- (a). Quality includes conformity with defined requirements and customer satisfaction. Discuss whether you agree that 'Quality, starts with the designers and that consequently the cost and quality of a project are determined in the early stages of a project'. (9 marks)
- (b). Explain what you understand by the following and give examples of their use:
- (i). 'Product Specification' (3 marks)
 - (ii). 'Process Specification' (3 marks)
 - (iii). 'Performance Specification' (3 marks)
- (c). Briefly explain what you understand by 'Life cycle costs'
Discuss features and measures that could be adopted in the design to improve the sustainability of a development project. (7 marks)

Section B

Q5.

- (a). In construction, quality need not be defined as 'excellence'; a more appropriate definition for quality would be 'conformance to requirements'. Discuss. (9 marks)
- (b). Briefly explain the purpose of 'Internal quality audits' in an ISO 9000 quality management system. (8 marks)
- (c). Any contractor, who has implemented a quality management system to ISO 9001 in his organisation should develop a Quality Plan for each and every project undertaken by him. Briefly describe how you would develop such a 'project quality plan' and its contents. (8 marks)

Q6.

- (a). Briefly explain the difference between 'Corrective Action' and 'Preventive Action'. (8 marks)
- (b). For assuring quality of construction works, personnel performing them must be competent on the basis of appropriate education, training, skills and experience. What requirement or requirements in ISO 9000 would deal with this aspect of human resources available within the company and hired from outside? Illustrate your answer using examples. (9 marks)
- (c). Briefly discuss the costs and benefits of obtaining ISO 9002 certification for a contractor organisation. (8 marks)

