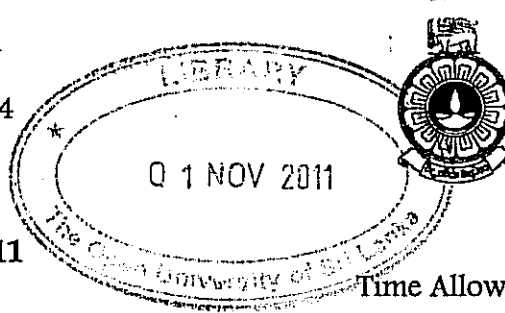


THE OPEN UNIVERSITY OF SRI LANKA
Department of Civil Engineering
Diploma in Technology (Civil) - Level 4

CEX4235 - Building Engineering

FINAL EXAMINATION - 2010/2011



Time Allowed: Three (03) Hours

Date: 24-03-2011 (Thursday)

Time: 1400 - 1700 hrs.

Answer five (5) out of seven (7) questions. All questions carry equal marks

Q1.

- (a). Briefly explain what you understand by the term 'project'. (5 marks)
- (d). Describe the main stages of implementation of building projects. (5 marks)
- (c). Describe briefly the main duties of a quantity surveyor in the 'feasibility' and 'outline design' stages of a project. (5 marks)
- (d). Name and describe the functions of four major elements of a building structure. (5 marks)

Q2.

- (a). Explain what is meant by 'service space' and 'served space' giving two examples each in relation to a hospital. (5 marks)
- (b). List three different types of 'clients' who may commission projects, giving one example each for each type. (5 marks)
- (c). Describe with sketches two ways in which the topography of a site could significantly influence architectural design of a building. (5 marks)
- (d). Give three reasons why building laws are necessary. (5 marks)

Q3.

- (a). There are four clearly defined steps in the preparation of Bills of Quantities. Describe them. (5 marks)
- (b). Describe four factors to be considered in selecting a site for surface water intake. (5 marks)
- (c). Discuss briefly two methods of transmission of water. (5 marks)
- (d). Explain what is meant by the 'loading unit' used in assessing probable demand of water in a building. (5 marks)

Q4.

- (a). List four different types of sanitary fixtures available in domestic premises/public buildings with a brief description of each type. (5 marks)
- (b). Explain the purpose of providing manholes and describe the locations at which they should be provided. (5 marks)
- (c). Sketch a conventional septic tank and name its main components. (5 marks)



(d). State and briefly describe the four functional elements used in a solid waste management system.

(5 marks)

Q5.

(a). Sketch and name two different types of bonds used in constructing masonry brick walls. (5 marks)

(b). Waling beams and struts are important members of a system used to provide lateral support to excavations. Provide a sketch with descriptive notes to indicate the functions of 'waling beams' and 'struts' used in earthwork support. (5 marks)

(c). Discuss the importance of preparing the surface of the walls before plastering and describe how it should be done. (5 marks)

(d). Sketch a cross section of a glazed window sash and show how glass sheet is fixed to the window. (5 marks)

Q6.

(a). Describe briefly your understanding of "Star" and "Delta" configurations of three phase electrical systems. (5 marks)

(b). Name and describe the electrical distribution system employed in Sri Lanka, using sketches. (5 marks)

(c). Omission of overload protective devices are permitted under certain circumstances. List two such cases. (5 marks)

(d). Show graphically the operating characteristics of four types of MCB's used in over current protection and describe the most suitable type of load for each type of MCB. (5 marks)

Q7.

(a). What is the operational principle of a Residual Current Device (RCD)? Describe using sketches. (5 marks)

(b). Write a descriptive note on Compact Fluorescent Lights (CFL) that is currently popular in Sri Lanka as an energy saving luminary. Include two advantages and two disadvantages each of CFL bulbs over other conventional types. (5 marks)

(c). Explain the following terms : glare index, daylight factor. (5 marks)

(d). How would you represent the processes of heating (latent), cooling (sensible) and dehumidification in a psychrometric chart? (5 marks)

