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

CEX4235 - Building Engineering

FINAL EXAMINATION - 2013/2014

Time Allowed: Three (03) Hours

Date: 28-08-2014 (Thursday) Time: 0930 - 1230 hrs.

Answer five (5) out of seven (7) questions.

Q1.

(a). The time for completion specified by the client is important in any project. Briefly describe **four** financial / business implications of late completion in case of a project to construct an office building. (5 marks)

(b). Architect plays a major role in a residential building project. Explain **three** important duties of an architect as a member of the design team. (5 marks)

(c). Describe **two** activities required to be carried out during the pre-design stage under "evaluation of the need". (5 marks)

(d). Briefly describe **four** different types of floor systems used in buildings. (5 marks)

Q2.

(a). Describe what you understand by the words 'useable space, served space and service space'. (5 marks)

(b). Explain what is meant by the terms 'functional feasibility, technical feasibility and financial feasibility' of a project. (5 marks)

(c). A check on "quality of the environment" should be made when selecting a site for construction of a hospital. State **four** environmental quality factors to be considered in making the choice. (5 marks)

(d). Give **three** reasons why building laws are necessary. (5 marks)

Q3.

(a). Explain what you understand by "Specifications" and give an example each for specifications for architectural and structural work. (5 marks)

(b). Draw a typical water demand pattern indicating average demand and peak demand for a 24 hour cycle. (5 marks)

(c). Describe what is meant by 'screening', the first treatment method carried out during purification of water, and explain what would happen if screening is not done at the water intake. (5 marks)

(d). Ozone is a good chemical disinfectant used in purification of water. List **two** advantages and disadvantages each of ozone. (5 marks)

Q4.

(a). Water distribution pipe lines are normally laid along sides of the roads. State **three** reasons for following this practice. (5 marks)

(b). Discuss the use of a "vent pipe" with the stack systems used in high rise buildings. (5 marks)

(c). Discuss **two** advantages and disadvantages each of "sanitary land filling" used in disposal of solid waste by most of the local councils in Sri Lanka. (5 marks)

(d). Strength of brick walls depend on several factors and the type of brick bond is a very important factor. Explain the most important feature of all brick bonds. Illustrate your answer with a sketch. (5 marks)

Q5.

(a). Clearly sketch plans of two successive courses of a right angled one brick quoin in English Bond. (5 marks)

(b). Explain why excavations made in weak soils need to be supported. Illustrate your point by drawing a sketch and label the important members used. (5 marks)

(c). Sketch a cross section of a double pitch calicut tile roof and name four important members. (5 marks)

(d). Draw an elevation of a ledged and battened door and name important parts. (5 marks)

Q6.

(a). Draw a sketch of a single phase generator and label important parts. (5 marks)

(b). Explain clearly what is meant by "Power Factor" of alternating current electrical installations, using diagrams where necessary. (5 marks)

(c). Presently available types of safety Circuit Breakers (Trip-Switches) generally have tripping functionality against three types of electrical faults. Name and briefly describe them. (5 marks)

(d). Explain why short circuit currents are more damaging to electrical installations than overload currents. (5 marks)

Q7.

(a). What is Ventricular Fibrillation and how does it happen when a person receives an electric shock? (5 marks)

(b). Daylight received inside a building consists of **three** different components. List the **three** components and illustrate with a sketch. (5 marks)

(c). Describe what a polar curve with reference to a light source is. Illustrate your point with a sketch. (5 marks)

(d). Explain how a room air conditioner works with a simple sketch. (5 marks)