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

CEX4235 – Building Engineering

FINAL EXAMINATION – 2012/2013

Time Allowed: **Three (03) Hours**

Date: 15-08-2013 (Thursday) Time: 0930 - 1230 hrs.

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

Q1.

(a). List and briefly explain **two** duties each of **two** members of the design team of a building project. (5 marks)

(b). List **four** important items which should be in the client's brief for a hospital project. (5 marks)

(c). **Two** main objectives need to be achieved in the 'outline design' stage of a project. What are those? (5 marks)

(d). It is possible to classify buildings in several ways based on different criteria. List **two** such criteria giving **two** examples for each. (5 marks)

Q2.

(a). Explain using a private residential building as an example what is meant by 'Primary Circulation', 'Secondary Circulation' and 'Domain'. (5 marks)

(b). Give **five** different criteria used in selecting a site for construction of a super market. (5 marks)

(c). There are several authorities responsible for enacting building laws depending on the proposed site location. List **four** such authorities. (5 marks)

(d). Discuss the information that is generally provided in a 'priced bill of quantities'. (5 marks)

Q3.

(a). Water served to the consumers should have certain qualities. List **five** such qualities. (5 marks)

(b). Removal of impurities from the raw water in a slow sand filter is brought about by **four** processes. Name and briefly describe these processes. (5 marks)

(c). List **five** important characteristics a good chemical disinfectant should possess. (5 marks)

(d). List **two** advantages and disadvantages each of 'Branched' system of water distribution. (5 marks)

Q4.

(a). State **three** reasons for providing storage tanks in buildings to store water. (5 marks)

(b). State why water seals are used between sanitary fixtures and disposal lines. (5 marks)

(c). Sketch a conventional septic tank and name its parts. (5 marks)

(d). Briefly describe the **three** principal methods of waste disposal. (5 marks)

Q5.

(a). Draw **plans of two successive courses** of a 'one brick wall' in 'English bond' and 'Flemish bond'. (5 marks)

(b). Draw a **plan** and **elevation** of a reinforced concrete pad footing. (5 marks)

(c). Briefly describe the main steps to be followed in finishing the floors with cement-sand rendering. (5 marks)

(d). Illustrate with a **sketch** a rainwater pipe system with various fittings used to drain water collected at the eaves of a roof. (5 marks)

Q6.

(a). Give **two** advantages of using alternating current over direct current electrical power supply for industrial and domestic purposes. (5 marks)

(b). Compare and contrast the three main systems used to transmit electrical power. (5 marks)

(c). Discuss the difference between an "overload" and "short circuit" current. (5 marks)

(d). Illustrate with a **sketch** the operational principle of a Residual Current Circuit Breaker (RCCB) (5 marks)

Q7.

(a). Give two reasons for dividing domestic electrical installations into sub circuits. (5 marks)

(b). Explain the following terms ; glare index, daylight factor. (5 marks)

(c). LED bulbs are gaining popularity over conventional tungsten filament bulbs and CFL bulbs. Give **two** advantages of LED bulbs over other types. Why are LED bulbs ~~are~~ not widely used? (5 marks)

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