

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



CEX4235 - Building Engineering

FINAL EXAMINATION - 2011/2012

Time Allowed: Three (03) Hours

Date: 15-03-2012 (Thursday)

Time: 1400 - 1700 hrs.

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

Q1.

- (a). Describe briefly four important requirements which would be in the Client's brief for a tourist hotel. (5 marks)
- (b). Explain briefly two objectives of the final sketch design stage. (5 marks)
- (c). Describe briefly two main types of loads that may act on a structure giving two examples each for each type. (5 marks)
- (d). Define what is meant by 'circulation space'. Explain using a sketch what is meant by 'Primary Circulation' and 'Secondary Circulation'. (5 marks)

Q2.

- (a). Give an example for a 'non user plural client'. Discuss two problems associated with projects initiated by such a client. (5 marks)
- (b). Describe briefly five different criteria used in selecting a suitable site for a shopping complex. (5 marks)
- (c). State briefly four primary functions of a Quantity Surveyor. (5 marks)
- (d). Describe what is meant by a 'Dimension Paper' and its use. (5 marks)

Q3.

- (a). Explain what you understand by 'Specifications' and give an example for specifications for structural work. (5 marks)
- (b). Give two sources each of surface water and ground water and comment on the suitability of each as a source of drinking water. (5 marks)
- (c). Briefly explain the processes that take place in a rapid sand filter. (5 marks)
- (d). Water may be distributed by a system based on gravity, pumping or a combined system. Describe three disadvantages of using a gravity system for a large development. (5 marks)



Q4.

- (a). Describe what is meant by the effective length of a pipe run. (5 marks)
- (b). Explain in your own words, the following terms and their significance/use : Design rainfall intensity, Impermeability factor (5 marks)
- (c). State three factors that should be considered in determining the size of a septic tank for a small house. (5 marks)
- (d). State two advantages and disadvantages each of "sanitary land filling" used in disposal of solid waste. (5 marks)

Q5.

- (a). Sketch two successive courses of a 'one brick' wall in, (6 marks)
- (i). English Bond
- (ii). Flemish Bond
- (b). Sketch typical details of a reinforced concrete column supported on a pad footing. (5 marks)
- (c). Describe two different types of floor finishes commonly used in residential buildings. (4 marks)
- (d). Write short notes on, (5 marks)
- (i). Valance Board
- (ii). Verge Board

Q6.

- (a). Clearly explain 'Power Factor' of alternating current electrical installations, using diagrams where necessary. (5 marks)
- (b). Discuss the difference between an "overload" and "short circuit" current. (6 marks)
- (c). Draw a schematic diagram of a house wiring circuit, indicating all necessary switch-gear and components starting from the main power supply post, for the three sub circuits with the following requirement. (9 marks)
- (i). Sub circuit 1 – one 15A wall outlet
- (ii). Sub circuit 2 – two lighting points and two fans
- (iii). Sub circuit 3 – two lighting points and two 5A wall outlets

Q7.

- (a). What is Ventricular Fibrillation and how does it happen when a person receives an electric shock? (5 marks)
- (b). Explain the working of a filament lamp. (5 marks)
- (c). Define the term 'daylight factor' used in building illumination and how this can be increased. (5 marks)
- (d). How would you represent the processes latent heating and sensible heating in a psychrometric chart. Describe the basic difference between the two processes. (5 marks)

