



THE OPEN UNIVERSITY OF SRI LANKA  
 Diploma in Technology (Civil) / Bachelor of Technology – Level 4  
**CEX 4235 – Building Engineering**  
 Final Examination – 2005/2006  
 Time Allowed 3 hours

Date 10<sup>th</sup> of April 2006

Time – 9.30 – 12.30 hrs

**Answer any Five questions**

- Q1. (a). Suppose that you are the "Design team leader" of a multi-storey five star hotel project in Hikkaduwa area. You should have proper understanding and controlling of the "life cycle" of the project.
- (i). What do you understand by the project life cycle. (5 Marks)
  - (ii). List the three steps in the pre-design stage of the given project (3 Marks)
  - (iii). Describe the above mentioned three steps according to given project. (6 Marks)
- (b). Describe two "external factors" which may affect the life cycle of your project (6 Marks)
- Q2. (a). The Client is the important person or organization of the any project and the client initiates the idea of any project.
- (i). Give an example of each, a 'user client' and a 'non-user' client and discuss the main differences between the two types. (4 Marks)
  - (ii). Explain functional feasibility of a project with an example (6 Marks)
- (b). Describe with sketches how the "orientation of a building" is vital for any kind of building. (5 Marks)
- (c). Give two reasons why a "site survey" should be carried out before any work starts on a project. (5 Marks)
- Q3. (a). Sketch the water demand pattern of urban areas for one working day and use it to describe hourly peak factor and daily peak factor. (6 Marks)
- (b). State four basic Quality requirements of water. (4 Marks)
  - (c). Describe using a sketch the requirement of Sedimentation tank in water treatment plant (6 Marks)
  - (d). List the types of pumps used in water supply and describe the reason for cavitation in pipes. (4 Marks)

- Q4. (a). Discuss three performance requirements of sanitary fixtures in modern toilets (6 Marks)
- (b). What is the "self cleansing velocity" used in Sewer lines and why is this velocity so vital. (4 Marks)
- (c). Describe three main factors that should be considered in designing a Septic tank for a residential building. (5 marks)
- (d). "Composting" is one of the systems used for disposal of waste. Describe the method and state advantages and disadvantages of composting over two other frequently used methods. (5 Marks)
- Q5. (a). Mention five main services functioning in high-rise buildings and describe the duties of a service engineer in a multistorey building project. (5 Marks)
- (b). Discuss the requirement of manholes in sewer lines and state the places where manholes should be included. (5 Marks)
- (c). Describe requirements and method of surface preparation before plastering a new brick wall. (5 Marks)
- (d). Sketch a suitable foundation for a two storey house which is situated in an area of normal soil and water table 10 m deep from ground level. (5 Marks)
- Q6. (a). Three-phase Supply system can be classified into two groups namely 'Star configuration' and 'Delta configuration'. Describe the difference between two systems with suitable sketches. (5 Marks)
- (b). Describe how the 'Visual Inspection' can be made prior to installing electrical equipment. (5 Marks)
- (c). What are the main effects due to earth leakage in buildings and what measures can be taken for prevention of earth leakage. (5 Marks)
- (d). Describe main functions of an MCB. (5 Marks)
- Q7. (a). Several types of lamps are available for artificial lighting, which utilize electricity. List three types of lamps available and discuss how they function. (6 Marks)
- (b). Define the term 'Day light factor' used in building illumination and how this can be increased. (4 Marks)
- (c). Sketch psychrometric chart and discuss three usages of this chart. (6 Marks)
- (d). How does the color of a paint used for internal walls affect the internal illumination of buildings. (4 Marks)