



**SLIATE**

*SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION*  
(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

**Higher National Diploma in Engineering (Civil)**  
**Second Year, Second Semester Examination – 2016**  
**CE 2213 - Civil Engineering Construction II**

Instructions for Candidates:

No. of questions : 06

**Answer five questions only**

No. of pages : 3

Time : 3 hrs

Q1. Star Construction Company Ltd., got a design and build type of contract for an eight storey building construction with 32 dwelling units at the heart of the Colombo city. You have been appointed as a specialist to provide advice on building services.

- I. What are the three types of building services very essential to maintain health and sanitation in a dwelling complex of similar type? (03 marks)
- II. What are the main purposes of maintaining the internal air quality of dwelling units? And how do you achieve them? (05 marks)
- III. Briefly explain the available waste disposal systems in Sri Lanka (04 marks)
- IV. Explain general guidelines available for fire proof of building (04 marks)
- V. Illustrate the components of a staircase with a help of a diagram and indicate the minimum standard size range of them. (04 marks)

Q2. The world has faced a numerous disasters and due to them it has lost a substantial amount of human lives and properties. Civil Engineering specialists also play a major role to minimize these types of losses.

- I. What do you understand by the term "disaster " (03 marks)
- II. Name different kinds of natural disasters (03 marks)
- III. What do you understand by the term "disaster risks" and what are the possible disaster risks in Sri Lanka (04 marks)
- IV. What is "disaster mitigation" (04 marks)
- V. Explain any three examples of disaster mitigation measures incorporated into Civil Engineering designs with respect to any natural disaster (06 Marks)

Q3. Tunnels are manmade structures which help in several ways to the human beings to fulfil their needs effectively. There are different types of tunnels based on shapes, sizes and construction methodologies.

- I. Explain the advantages and disadvantages of tunnels (04 marks)
- II. What are the purposes of tunnels? (04 marks)
- III. Explain any two methods of tunnel construction. (04 marks)
- IV. What do you understand by “stand up” time? (04 marks)
- V. Explain the methods to be followed to prevent injuries and to improve safety at work sites. (04 marks)

Q4. In Civil Engineering construction projects plants and machineries play a major role. Effective management of plant and machineries are very important for desired outcome of the projects.

- I. Explain common difficulties in plant management (04 marks)
- II. Briefly explain the following construction activities and the equipments used for those activities.
  1. Earth compaction
  2. Concrete mixing
  3. Hauling
  4. Hoisting
  5. Drilling (06 marks)
- III. What are the advantages of preventive maintenance? (04 marks)
- IV. A building construction project consists of a basement and ten stories. You have been appointed as in-charge of the excavation and removal of soil process. The excavated soil has to be dumped at a site which is situated three kilo metres away from the construction site. Explain the steps involved in determining type of machineries and number of machineries to be deployed effectively. (06 marks)

Q5.

I. What are the factors affecting selection of a site for a dam construction?  
(04 marks)

II. (a) Explain the use of scaffolding (04 marks)

(b) ) Name main types of scaffoldings which are employed in the building  
Constructions (04 marks)

III. What are the design criteria of "Green building concept"? (04 marks)

IV. Name the field tests used to find out the suitability of bricks for  
construction activities (04 marks)

Q6.

I. What are the things to be considered when constructing a new road?  
(04 marks)

II. Why P.V.C pipes and fittings are widely used for water supply and waste  
water pipe lines? (04 marks)

III. What are the requirements of a good form work? (04 marks)

IV. Draw three (03) types of road sections that are normally constructed  
according to ground (land shapes) (04 marks)

V. Explain the Civil Engineering Construction activities "Shoring" and "Under  
pinning" (04 marks)