

THE OPEN UNIVERSITY OF SRI LANKA  
Department of Civil Engineering  
Bachelor of Technology (Civil) - Level 6



CEX4235 - Building Engineering

FINAL EXAMINATION - 2016/2017

Time Allowed: Three (03) Hours

Date: 2017 - 12 - 02 (Saturday)

Time: 0930 - 1330 hrs.

Paper consists of Seven (07) questions. Answer any five (05) questions.  
You may assume and state reasonable values for any factors not provided.

Q1.

- (a) The **quality, time and cost** considerations of a project are interdependent. Discuss this Scenario giving examples. (5 marks)
- (b) Briefly discuss the stages in 'project cycle'. (5 marks)
- (c) List and briefly describe the four sub stages of the "Pre-design" stage of building projects. (5 marks)
- (d) Briefly discuss the role of Design Team Leader (DTL) of a mega project. (5 marks)

Q2.

- (a) Explain why a good **orientation** is important for a building. (5 marks)
- (b) What do you understand by 'differential settlement' of foundations? (5 marks)
- (c) Describe what a load bearing wall is. List an advantage and a disadvantage of load bearing walls. (5 marks)
- (d) Explain the importance of using the 'Standard Method of Measurement' in preparing the Bill of Quantities for construction work. (5 marks)

Q3.

- (a) Quality of water supplied to consumers should be within acceptable limits. State four important qualities of water expected by consumers. (5 marks)
- (b) Sketch a rapid sand filter and name important parts. (5 marks)
- (c) List five important characteristics that a good chemical disinfectant should possess. (5 marks)
- (d) Explain how floating light clay particles are converted into heavy flocks which settle easily in a water treatment plant during the water purification process. (5 marks)

Q4.

- (a) State two advantages and disadvantages each of "branched" and "grid" systems of water distribution. (5 marks)
- (b) Describe two different methods used to supply water to tall buildings. (5 marks)
- (c) Traps are provided in sanitary fixtures to maintain a water seal. Explain two advantages of having a water seal. Name and draw sketches of two commonly available types of traps. (5 marks)



- (d) Describe what a septic tank is. Sketch a sectional view of a typical septic tank used in a domestic sewerage disposal system and name its important parts. (5 marks)

Q5.

- (a) Sketch clearly two successive courses at a 'T' junction between a 'half brick' wall and a 'one brick' wall. (5 marks)
- (b) Strength of brick walls depends on several factors. Name and briefly describe three such factors. (5 marks)
- (c) Describe two different types of floor finishes indicating advantages and disadvantages. (5 marks)
- (d) Describe two types of foundations adopted in medium rise building construction. (5 marks)

Q6.

- (a). Sketch an elevation of a double pitch Calicut tiled roof including rain water pipe system indicating important components. (5 marks)
- (b). Write a short note on Light Emitting Diode (LED) bulbs and Compact Fluorescent Lights (CFL) giving advantages and disadvantages of each type. (5 marks)
- (c) Draw a sketch of a single phase generator and label important parts. (5 marks)
- (d) Describe three advantages of using alternating current (AC) for electrical power generation and transmission. (5 marks)

Q7.

- (a) Describe the difference between Overload Current and Short Circuit Current. Which one is more dangerous? (5 marks)
- (b) Indicating main components, sketch the circuit diagram of a typical household electrical installation with two sub circuits. (5 marks)
- (c) Explain the concept of 'Root Mean Square - R.M.S.' used in measurement of AC currents and voltages. (5 marks)
- (d). List four types of treatments given to air in air-conditioning and indicate the four treatments in a psychometric chart. (5 marks)

