



# The Open University of Sri Lanka

## Faculty of Engineering Technology

Study Programme : Bachelor of Science Honours in Engineering

Name of the Examination : Final Examination

Course Code and Title : CVX 4350– Quantity Surveying

Academic Year : 2024/25

Date : 04<sup>th</sup> March 2026

Time : 0930 -1230 hrs

Duration : 3 hours

### General Instructions

Read all the instructions carefully before answering the questions.

1. This question paper consists of **eight (8)** questions. Answer **any five (05) questions**
2. Answer for each question should commence on a new page.
3. This is a Closed Book Test (CBT).
4. Answers should be in clear handwriting.
5. Do not use Red colour pen.

### Question 1

1. Briefly discuss different roles played by the Contractor's Quantity Surveyor in a construction project.  
(05 marks)
2. Briefly explain what is 'Standard Method of Measurement' in construction works.  
(05 marks)
3. It has been planned to use Unit Area method to estimate the cost of a proposed school building having a total floor area of 1100 m<sup>2</sup>. Floor area costs of different functional areas of a recently completed similar project are given in Table 1. Percentage floor areas allocated for different functions of the proposed building are also given in the same table. **However, it requires to increase the recorded unit costs of laboratories and toilet and washrooms by 8% to allow for recent increase of market prices of materials relevant to such items. No such increase is applicable to other functional areas.** Calculate the total estimated cost for the proposed project based on unit area method.  
(10 marks)

**Table 1**

| Functional areas           | Percentage floor areas allocated for each function in the proposed project | Unit cost of construction of each functional area in the completed project (Rs. per sqft) |
|----------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Classrooms                 | 58                                                                         | 8,300                                                                                     |
| Laboratories               | 12                                                                         | 9,100                                                                                     |
| Corridors and other common | 17                                                                         | 8,150                                                                                     |
| Toilet & washrooms         | 13                                                                         | 9,300                                                                                     |



## Question 2

1. Explain what is referred to as 'Preambles' in a BOQ and its importance. (06 marks)
2. Name four (04) items usually included as "Preliminaries" of a construction project. (04 marks)
3. A contractor has to calculate a rate for excavation and disposal of soil in a construction project. He is planning to use an excavator available with him, and the depreciation cost of it per day is Rs. 22,000. Typical diesel consumption per hour of the excavator is 1.8 liters and the price of diesel is Rs. 268 per liter. Typically, this excavator can excavate 35 m<sup>3</sup> during a day. The daily wage of the operator of the excavator is Rs. 4,500. For the disposal of excavated material, it has to pay Rs. 600 per truck load (The transporting capacity of the truck to be selected is 1.25 cubes). Further, it is needed to utilize 3 hrs of unskilled labour for a day for neat completion of the excavation. It is necessary to allocate another 5% for the total calculated cost for other miscellaneous work. Calculate the rate for excavation and disposal of soil of 1 m<sup>3</sup>. Unskilled labour rate per day is Rs. 2,500. If needed, you may make any other assumptions after clearly stating such assumptions. (10 marks)

## Question 3

1. Name two classes of equipment considered during costing, and explain how cost are calculated for equipment of these two classes (05 marks)
2. Briefly explain what is "Break Even Point" in costing. (04 marks)
3. A cement block casting machine has an initial cost of Rs. 1.5 million and has a salvage value of Rs. 0.3 million after usage of 5 years. The electricity consumption of this machine is 0.75 kW. An owner of block casting company wishes to buy this machine, and wants to estimate the machine cost per block if this machine is used for the production. The number of operating days of the plant is 270 days per year and the daily wage of operating staff of the machine is Rs. 2,500. It has to allow 10% of annual capital cost the machine as its maintenance cost. This machine would produce 200 cement blocks per day and the average price of 1 unit of electricity can be considered as Rs. 45. Calculate machine cost per block. (12 marks)

## Question 4

1. Briefly discuss the Design – Build contracts. (04 marks)
2. Name four documents categorized under Contract Documents. (04 marks)
3. Briefly discuss Schedule of Rates of used in contract highlighting situations where these could be used in the construction industry. (05 marks)
4. It is required to execute waterproofing work for a roof slab of a building which is experiencing seepage during rainy seasons. This slab is of irregular shape, and hence, taking exact measurements is a cumbersome task. If you are the consultant of this project, name the contract type that you would adopt to execute this work justifying your selection. (07 marks)



### Question 5

1. As per Land and Property Law of Sri Lanka, discuss three limitations to use of a land. (06 marks)
2. Name four main headings of Condition of Contract – ICATD Standard Bidding Document. (04 marks)
3. Assume that one party of a construction contract has breached the contract. Discuss actions that can be taken by the affected party due to this breach. (05 marks)
4. Briefly discuss two main Precontract estimating methods. (05 marks)

### Question 6

1. Discuss the Double envelop system used in Open tenders. (04 marks)
2. List all documents which are considered as Bidding documents of a tender. (05 marks)
3. Briefly discuss the preliminary examination of process of bids of a tender. (05 marks)
4. Explain what is bonding in tenders/contracts while highlighting different types of bonds involved in tenders/contracts. (06 marks)

### Question 7

1. Briefly discuss how construction industry could contribute to minimizing the unemployment of a country. (05 marks)
2. Name three main categories of claims relevant to a construction contract and briefly explain any one main category. (06 marks)
3. Briefly explain the following terms in a civil engineering contract.  
(a) Price escalation  
(b) Sub Contracts (04 marks)
4. A company has invested Rs. 5.0 million in a bank for three years. The annual interest rate for this investment is 8 % and the interest is calculated annually and added to the balance at the end of the year. Calculate the interest income earned by the company through this investment. (05 marks)

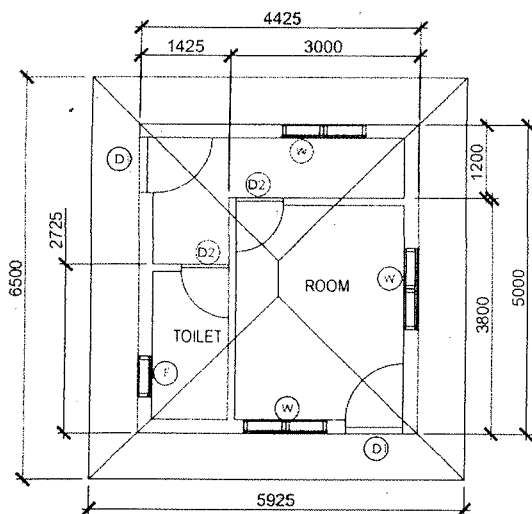
### Question 8

1. List four supplementary information that should be provided in a BOQ relevant to concrete reinforcement in insitu concrete as per SLS 573. (04 marks)
2. Name three measurement rules applicable to measuring of brick work as per SLS 573. (03 marks)



3. Name the standard units in which quantities of the following items are calculated as per SLS 573.
- 225 mm thick brick work
  - Reinforcements of a slab
  - Damp proof course on foundation wall having a thickness of 450 mm (03 marks)
4. The figure given below shows a plan for the proposed building to house security office at the OUSL. All perimeter walls are 225 mm thick and all internal walls are 115 mm thick. All walls are having a height of 3.2 m. Calculate the net quantities of the following items in standard units as per SLS 573.
- 115 mm thick brick walls
  - Plastering work of external walls
  - Painting of internal walls

You may make any rational assumption (if necessary) in your calculations, but these assumptions shall be clearly stated. (10 marks)



PLAN

| SCHEDULE OF DOORS AND WINDOWS |                  |                          |     |
|-------------------------------|------------------|--------------------------|-----|
| Type                          | SIZE ( W X H MM) | DESCRIPTION              | NOS |
| D1                            | 900X2200         | ALUMINIUM PANELED DOOR   | 02  |
| D2                            | 750X1900         | ALUMINIUM PANELED DOOR   | 02  |
| W                             | 1300X1600        | ALUMINIUM SLIDING WINDOW | 03  |
| F                             | 600X750          | ALUMINIUM FANLIGHT       | 01  |