

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Civil Engineering



Study Programme	: Bachelor of Technology Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	: CVX4350 Quantity Surveying
Academic Year	: 2020/21
Date	: 6 th February 2022
Time	: 1400-1700 hrs

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Eight (8)** questions in Four **(4)** pages.
3. Answer any **Five (5)** questions only. All questions carry equal marks. If you have answered more than five questions (either partly or in full), strike off the excess answers that need not be evaluated. Otherwise only the first five answers appearing in the answer book will be evaluated.
4. Answer for each question should commence from a new page.
5. This is a Closed Book Test (CBT).
7. Answers should be in clear handwriting.
8. Do not use red colour pen.

Q1.

Bill of Quantities (BOQ) is the document that contains the activities and their respective quantities to be carried out in a construction project.

- 1) Explain the importance of the BOQ in a construction project. (04 marks)
- 2) List four (04) various Standard Methods of Measurement (SMMs) used to prepare BOQs. (04 marks)
- 3) Briefly describe the four (04) steps of preparation of a BOQ using the traditional method. (04 marks)
- 4) List and briefly describe the contents of a typical BOQ. (08 marks)

Q2.

- 1) Define the terms 'Future value' and 'Present value'. (04 marks)
- 2) You invest Rs. 5,000,000 at an annual rate of return of 6%. Calculate future value of the investment at the end of four years. (04 marks)
- 3) Estimate the quantities of brickwork and plastering required in a wall which is 4 m long, 3 m high and 30 cm thick. Also calculate the costs of brickwork and plastering separately if the rate of brickwork is Rs. 1,200 per m³ and plastering Rs. 1,800 per m². (04 marks)
- 4) Prepare unit rate for a block wall based on the following norm and current market prices presented in the price schedule. Assume that an overhead and profit percentage of 25% is applicable. (08 marks)

a. Norm

Quantities for 1 m ³ of block wall			
No	Item	Unit	Quantity
1	6" - 9" Rubble	Cube	1.3
2	Cement	Bag	5
3	Sand	Cube	0.3
4	Water	Gal	100
5	Mason	Day	4
6	Unskilled Labourer	Day	6
7	Add 3% of labour cost for tools		

b. Price schedule

Item	Unit	Unit Rate (Rs)
6" - 9" Rubble	Cube	7,500
Cement	Bag	1,450
Sand	Cube	17,000
Water	Gal	5
Mason	Day	3,200
Unskilled Labourer	Day	2,500

Q3.

- 1) Elemental cost planning and comparative cost planning are two basic methods adopted in current practice of cost planning of a project. Compare these two methods. (04 marks)
- 2) Preliminary estimation methods are used to estimate the cost of a project before the commencement of the detailed design. Describe briefly four (04) preliminary estimation methods used in construction industry. (04 marks)
- 3) Discuss how the size and height of the building affect the cost of the building. (04 marks)
- 4) Prepare a preliminary cost estimate for a two storey building having a carpet area of 1,800 m². It may be assumed that 30% of the built up area will be taken by corridors and verandas, and 10% of the built up area is to be occupied by walls. (05 marks)

The following additional information are provided:

- (i) Plinth area rate = Rs. 15,000/m²
 - (ii) Sanitary fittings = 5% of building cost
 - (iii) Electrical installations = 12.5% of building cost
 - (iv) Contingencies = 10%
- 5) A new hospital with 450 beds has been proposed to a city in the district of Matara. Prepare a preliminary estimate for the proposed new project by using the unit rate method. (03 marks)

Cost data: Cost of a completed hospital with 300 beds in a city in the district of Hambanthota is Rs. 600Mn.

Q4.

- 1) There are three personal laws in Sri Lanka. List these and describe their applications. (04 marks)
- 2) State the basic requirements in law in order to form a contract. (04 marks)
- 3) Explain what Design-Build contract is and discuss its benefits and potential problems. (04 marks)
- 4) "Strict liability" is a common tort in construction industry. Explain this giving examples. (04marks)
- 5) State six (06) legal requirements a builder is required to comply with when working in a construction project. (04 marks)

Q5.

There are various types of contracts for execution of civil engineering works.

- 1) Define the terms 'contractor', 'employer', 'contract price' and 'dayworks' as stated in clause 1 of CIDA/SBD01 (2nd) Edition. (04 marks)
- 2) What are compensable events under CIDA/SBD01 (2nd) Edition? Briefly explain these with examples. (06 marks)
- 3) Explain what advanced payment is and how the advanced payment is recovered in compliance with clause 51 of CIDA/SBD01 (2nd) Edition. (05 marks)
- 4) With respect to clause 13 of CIDA/SBD01 (2nd) Edition, explain the coverage of insurance policy. (05 marks)

Q6.

Construction claims mostly originates from parties to the contract due to various reasons.

- 1) Describe how construction claims are originated. (05 marks)
- 2) Explain three broad categories of claims. (05 marks)
- 3) List the documentation required for preparation of contractual claims. (05 marks)
- 4) List the steps of preparing a claim by the contractor. (05 marks)

Q7.

Purpose of tendering is to select the most competent source of supply with the most realistic price. A wrong choice may lead to an unhappy client/contractor relationship, a dissatisfied client and possibly an insolvent contractor.

- 1) List and describe different types of tendering methods used in construction. (04 marks)
- 2) Describe three stages of tender evaluation. (04 marks)
- 3) Describe five (05) main factors that need to be considered when selecting a prospective contractor and the type of contract. (04 marks)

- 4) Explain the purpose of obtaining bid bond, advanced payment guarantee, and performance bond by the employer. (04 marks)
- 5) List the ICTAD standard bidding documents. (04 marks)

Q8.

- 1) List the possible sources of internal finances available to a company. (04 marks)
- 2) Borrowing usually accounts for 20-30% of a company's capital. Discuss the different types of lenders available to a company. (04 marks)
- 3) Preference shares and Ordinary shares are two main types of shares issued by the Public Limited Companies. Explain these two types of shares. (04 marks)
- 4) With reference to final accounting practice an escalation clause is provided in a contract. Explain the purpose of having such a clause in a contract. (04 marks)
- 5) Explain the difference between fixed cost and variable cost, and give four (04) examples of each. (04 marks)

