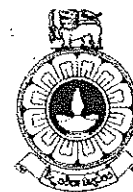


The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Civil Engineering



Study Programme	: Bachelor of Technology Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	: CVX4350/CVX4538/CEX4238 Quantity Surveying
Academic Year	: 2019/20
Date	: 12 th August 2020
Time	: 1330-1630hrs

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), cross out the answers. Otherwise only the first five appearing in the answer book will be evaluated.
4. Answer for each question should commence from a new page.
5. Relevant charts/ codes are provided.
6. This is a Closed Book Test (CBT).
7. Answers should be in clear handwriting.
8. Do not use Red colour pen.

Question 01

Bill of Quantities (BOQ) is the document that accurately represents the quantity of the works to be carried out by the Quantity surveyor.

- i. List six (06) different Standard Methods of Measurement (SMMs) used to prepare BOQs. (04 marks)
- ii. Briefly describe the four (04) steps in BOQ preparation using traditional method. (04 marks)
- iii. Discuss the uses of BOQs in a construction project. (04 marks)
- iv. Explain the use of 'Preamble' in civil engineering BOQ. (04 marks)
- v. Explain how a BOQ items are adjusted using the traditional method when the contract is subject to price escalation. (04 marks)

Question 02

- i. Define the term "depreciation". Explain the straight-line depreciation method. (05 marks)
- ii. A construction company purchased a truck on 01st January 2018 for Rs. 1,500,000.00. The truck is expected to have a residual (resale) value of Rs. 500,000.00 after 10 years. The company's financial year ends 31st December. Using the straight-line depreciation method calculate the depreciation expense for the year 2018. Also find the book value at the end of 2025. (06 marks)
- iii. Explain the terms 'Salvage value' and 'Scrap value' of an equipment/structure. (04 marks)
- iv. Define the term "Present value". Calculate the present value of Rs. 100,000.00 in 50 years at 6% interest rate. (05 marks)

Question 03

Specifications for different types of civil engineering works are available and are adhered to in most contracts.

- i. State the three (03) different types of specification as per the BS 7000; Part 4 of 1996. (02 marks)
- ii. Describe the necessity of specifications in civil engineering construction works. (04 marks)
- iii. State necessary requirements that should be included in a Prescriptive specification that is provided to a contractor to design a suitable concrete mix. (04 marks)

iv. Briefly explain the factors affecting the analysis of rates. (04 marks)

v. Prepare unit rate for brick work based on the following norm. (06 marks)

<u>Brick work in cement and sand 1:5 in 4 1/2" thick walls in ground floor</u>		
<u>Per square</u>		
<u>Materials</u>		
Type	Quantity	Unit
Bricks	550	Nos.
Cement	1.3	bags
Sand	1/10	cubes
Water	50	gallons
Allow 5% of wastage for bricks		
<u>Labour</u>		
Type	Quantity	Unit
Mason	1 1/2	days
Unskilled labourer	2	days
For scaffolding - Add 5% of labour cost		

Price schedule

Component	Unit	Price (Rs)
Brick	1000 nos.	15,000
Cement	1 bag	950
Sand	1 cube	15,000
Water	5 galloons	25
Mason	1 day	2,500
Unskilled laborer	1 day	1,800

Assume overhead and profit percentage is 25% from basic cost.

Question 04

Estimates are necessary at various stages during the design in order to keep track of expenditure in civil engineering projects.

i. State the specific use of Unit Rate of estimating in construction and explain two commonly used methods of Unit Rate estimating. (05 marks)

ii. Discuss how the cost implications affect a building with respect to the characteristics of plan shape of the building. (05 marks)

iii. Prepare a preliminary estimate of a double storeyed building having carpet area of 1800 m². Suitable extra provision of 30% of the carpet area to be made for corridors, verandas and staircase and 10% for walls. (05 marks)

Plinth area rate = 15,000/ m²

Water Supply and Sanitary = 5% of building cost

Electrical Installations = 12.5% of building cost

Contingencies = 10%

- iv. A client of a garment factory seeks your advice for building a new warehouse in his factory premises. The warehouse will be of 15m span and 30m length. The structure will be of RCC portal frame and the walls will be finished with colour bonded wall cladding. Cost information is available from a similar warehouse in the adjoining premises of a similar type at cost of Rs. 2,800/m³. Forecast new project cost by using given information and Figure 1. Assume no adjustment for location, quality and time. (05 marks)

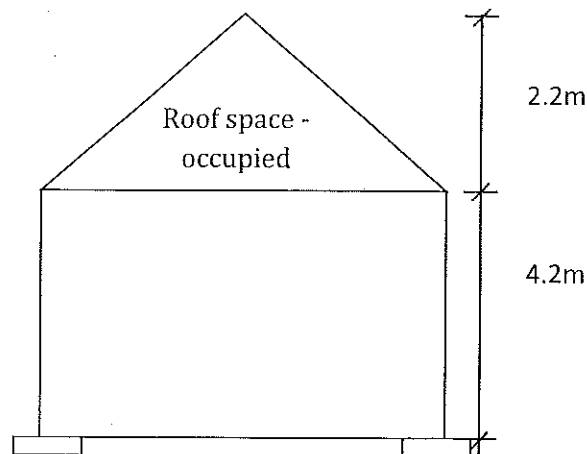


Figure 1: Section of proposed Warehouse

Question 05

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

- i. State the basic requirements in law, in order to fulfill a contract. (04 marks)
- ii. Distinguish between ad-measurement contract and cost reimbursement contract. (04 marks)
- iii. Describe the contents of contract documents. (04 marks)
- iv. Some breaches of contracts would amount to torts. Personal liability and vicarious liability are two such torts which are common in construction industry. Explain these two types of liabilities giving examples. (08 marks)

Question 06

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

- i. List and describe different types of tendering methods used in construction. (05 marks)
- ii. Discuss why various bonds and guarantees (Bid bond, Advanced payment guarantee, Performance bond, Retention money guarantee) are entertained in construction industry. (05 marks)

- iii. What are the different factors that need to be considered when selecting a prospective contractor? (05 marks)
- iv. Give an outline of the contractor's general responsibilities related to construction of buildings. (05 marks)

Question 07

- i. Describe in brief the method of preparation of interim valuation. (05 marks)
- ii. Discuss three broad categories of claims. (05 marks)
- iii. Explain conditions giving rise to contractor's claims for extra payments during construction. (05 marks)
- iv. Outline the documentation required for preparation of contractual claims. (05 marks)

Question 08

- i. State the definition of Quality as per ISO Standards. (03 marks)
- ii. 'Cost does influence the value, but value is not cost, though they can mean the same in certain contexts.' Explain this statement using examples. (07 marks)
- iii. The Building and Environmental regulations stipulate specific requirements for building constructions within the urban limits under the Land and Property Law. Discuss these requirements for a shopping complex to be constructed in a busy township area already congested with existing buildings. Assume that an existing old building has to be demolished in the process. (10 marks)

