



**Tertiary and Vocational Education Commission**  
**Knowledge Assessment – April 2022**  
**Quantity Surveying Assistant**  
**National Vocational Qualification Level 04**



**Time: 03 Hours**

**Instructions for the Candidates**

- Answer all questions
- In each of the questions from 1 to 50, pick the one of the alternatives (a), (b), (c), (d) which you consider is correct or most appropriate.
- Mark a cross (x) on the number corresponding to your choice in the answer sheet provided.
- Use of Calculator, BSR and SLS 573 are allowed.
- This question paper consists of 07 pages.

**Part 1**

1. Contents of Substructure are;
  - a) Foundation, Wall, Brick work
  - b) Floor, Wall, Ceiling, Roof, Slab
  - c) Excavation and fill, Screed, Rubble wall, DPC, Filling under floor
  - d) Wall, Roof, Brick work, Plastering, Plinth wall
2. Main Stake holders of the Construction project are;
  - a) Engineer, Quantity Surveyor, Worker
  - b) Client/Employer, Consultant, Contractor
  - c) Engineer, Skill Worker, Unskilled Worker
  - d) Client/Employer, Supplier, Contractor, Sub contractor
3. What is the suitable foundation for a land where water table is high;
  - a) Strip foundation
  - b) Independent foundation
  - c) Rubble foundation
  - d) Raft foundation
4. During tendering period, what are the things to be checked at the site visit as a bidder?
  - a) Material availability, Access, Other difficulties that were not mentioned in the tender
  - b) Details of other contractors, Sub contractors, Suppliers, Material availability
  - c) Names of suppliers
  - d) Information of Accessibility
5. What are the items to be considered for preparation of Basic unit rate/m<sup>3</sup> when you excavate with a bob cat machine?
  - a) Labour, Plant and Machinery
  - b) Manual & Machinery excavation, Machine hours and Labour hours
  - c) Machinery, Operator, Labour hours of clearing and replacing materials, Percentage of cost of tools, Cost of labour
  - d) Machine hours, Percentage of overhead and profit, Cost of materials

6. Removal of top soil can be measured as;
  - a) As an Item
  - b) As per meter
  - c) As square meter
  - d) As cubic meter
  
7. What is the purpose of Earth work support?
  - a) As a safety measure
  - b) To receive proper excavated trench
  - c) Prevention of earth collapse into the excavated trench
  - d) To block water entering into foundation
  
8. What is the purpose of "As built Drawing"?
  - a) To receive proper guidance to the Building user
  - b) To submit to the Consultant
  - c) To submit to the Service authorities and consultant
  - d) To keep as a records
  
9. Measurement of Pile foundation is to be taken up to;
  - a) Excavated pit level
  - b) Water level
  - c) Rock level or hard soil
  - d) Sandy soil level or water level
  
10. Classification of foundations is made based on the rules of measurement according to the guidance is;
  - a) Soil layers
  - b) Depth
  - c) Type of structure
  - d) All the above
  
11. An average height of a plinth is measured as;
  - a) 50mm -100mm
  - b) 300mm – 500mm
  - c) 1000mm - 2000mm
  - d) 300mm - 450 mm
  
12. Which of the followings **cannot** measured as materials at site;
  - a) Formwork material and tools
  - b) Bath room fittings
  - c) Sand, timber for doors and windows
  - d) Roof materials
  
13. Vertical posts of a hand rail in a stair case called as;
  - a) Treads
  - b) Risers
  - c) Balusters
  - d) Newels

14. The water proofing membrane prevents from;
- Termite attacks in a building
  - Moisture entering in to the building
  - Water Entering into the building
  - Corrosion on reinforce concrete
15. Work items for levelling the site are;
- Clearing, Grubbing & Removing
  - Trenching, Soil Strip & Bulking
  - Cut & Fill, Cut & Remove & Fill
  - Clearing and levelling the site
16. The purpose of Site investigation is;
- Collecting information about soil for the purpose of estimating
  - Gathering information about the history of site and social background
  - Collecting information on environment, social data to analyze for feasibility reporting
  - Finding availability and quality of local construction materials.
17. What is the best method statement on concrete?
- Mix proportions should ensure the workability of fresh concrete
  - Formwork should be able to be removed at any time
  - Premix concrete gives the best results within a short period
  - Mixed proportions should be changed during concreting
18. Duties of the Quantity Surveyor during feasibility and pre-contract period are;
- Collect tender, Price tender and submission of tender on time
  - Prepare Payment application, Price variation and day to day works, Tender documents
  - Prepare preliminary cost estimate and cost plans, Engineers estimate, Tender documents
  - Do value Engineering process, Prepare cash flow chart, Valuations, Tender documents
19. What is the purpose of shoring during Construction?
- To prevent collapse of trenches and workers safety
  - To prevent erosion at sea shore and preserve environment
  - To excavate deep trench
  - To make a platform to stand and work for the workers
20. Ways of preparing Bills of Quantities are;
- Unit method, Square method, Cubic method
  - Trade order, Construction order, Elemental order, Schedules
  - Timesing, Dimensions, Squaring
  - Open tendering, Selective tendering, Nominated tendering

21. Select the correct statement of Estimating from the followings;
- Estimating is used to obtain quality service at a reasonable price
  - Estimating is a reasonable System for inviting Quotations
  - Estimating is a Technical Process of predicting cost of construction
  - Estimating is commercial function performed by the management
22. The Bills of Quantities provides is a;
- Document which sets out the quantities and descriptions
  - Document used to obtain competitive tenders and contract value
  - Document that is prepared in recognized method of measurement
  - Document used to calculate quantity of materials
23. Sequence of the process of preparing a BOQ is;
- Timesing, Dimensions, Squaring, Bill sheets
  - Trade order, Construction order and Elemental order
  - Taking off, abstracting, Billing, Writing the BOQ with preambles
  - Length, Width, Height
24. Commonly used types of Standard Method of Measurements used in Sri Lanka and abroad are;
- SMM7, POMI, SLS573, CESMM4, NRM
  - FIDIC, CESMM – SL, AUSTRALIAN SMM, NRM
  - SBD2, FIDIC, POMI, SMM7, SLS 573
  - FIDIC, CESMM – SL, SBD 2, NRM
25. The most common Standard Method of Measurement for measuring Building works in Sri Lanka is;
- POMI
  - SMM7
  - SLS573
  - CESMM
26. For construction of buildings, major sections of the BOQ are;
- Preliminaries, Measured work, Provisional Sums
  - Substructure, Superstructure, Roof, Finishes
  - Excavation, Concrete, Carpentry & Joinery, Finishes
  - Contract Data, Bidding Data, and Price fluctuations
27. The item which is **not** included in the BOQ is;
- Preliminaries
  - Prime cost sums
  - Measured work
  - Price Escalations
28. Bill sheet page consists of;
- Overhead & profit, description, staff welfare & cost
  - Quantity of work, units, loan interest & cost
  - Supplementary Pay, Description, rates and Taxes
  - Item, Description, Quantity, Unit, Rate, Amount

29. Well drafted BOQ covers;
- Correctly entered total value of work to be measured, entered without missing, Unit price, Calculated amount
  - Tax reduction for bidders & increase in overheads
  - Total measured work as per drawing and specs, Provisional Sums, Preliminary Items, Contingencies
  - All the Items can be priced without missing,
30. It is always important that you should ..... as an early step in preparing Engineers Estimate;
- Identify the potential bidders
  - Prepare a list of materials and prices
  - Decide the profit margin
  - Organize the labour gangs
31. The profit will be seriously reduced if you;
- Miscalculate the monthly travelling by head office staff to the site
  - Maintain a forecasting process on cost and neglecting other temporary works
  - Under estimate the skilled/ unskilled labour requirement and material wastages
  - Divide sections in the BOQ to adequately cover the project
32. Initial cost estimates can be prepared;
- By using unit and cube method
  - Based on the allocated funds
  - Based on asking other contractors
  - By sketching up an idea
33. Detailed design and drawing are;
- Not required until the work is completed
  - Not required as the detailed estimates can be prepared using sketches
  - Used to finalize the work dimensions & final BOQ for Bidding
  - Required for the structural Engineer to select the materials on structural components
34. What is the correct order of contents of a Bills of Quantities?
- Preliminaries, Preambles, Prime cost & Provisional sums, measured work, Provisional Quantities, Contingency sums, General summary
  - Preliminaries, Provisional Quantities, Preambles, Measured work, Prime cost & Provisional sums, Contingency sums, General summary
  - Preambles, Preliminaries, Measured work, Provisional Quantities, Prime cost & Provisional sums, Contingency sums, General summary
  - Preliminaries, Preambles, Measured work, Schedules of works, Provisional Quantities, Prime cost & Provisional sums, Contingency sums, General summary
35. Bar bending schedule is useful mainly due to it helps to Quantity surveyors ;
- Calculate the requirement of bars, Calculate the quantity of wastage
  - Determine the strength of concrete
  - Decide on the required storage capacity for bars at the site
  - Assess the wastage of bars when cutting

36. What is the information **not** required to prepare a BOQ?
- Material lists & Transport ,Provisional sums
  - Drawings & Equipment list
  - Specification & special requirements
  - Attendance records & Daily Labour schedule
37. Building Schedule of rates for Sri Lanka is issued by the;
- Construction Industry Development Authority (CIDA)
  - Ministry of Finance
  - Ministry of Housing, Construction & Cultural Affairs
  - Department of Buildings
38. If there is an item on waterproofing work, when preparing an estimate what is the important document should you refer for pricing?
- Specification
  - Condition of contract
  - Type of material
  - Location of project
39. While preparing a detailed estimate, it is important to consider;
- Material availability & transportation, taxes and other charges
  - Check previously prices of similar material under similar conditions
  - Past records of similar projects
  - All of the above
40. When preparing a BOQ, the quality and the standards of materials and products should be specified by the;
- Construction Industry Development Authority (CIDA)
  - Sri Lanka Standards Institution
  - Buildings Dept. & Road Development Authority
  - Sri Lanka Land Reclamation and Development Corporation
41. What is the Gross Unit Rate?
- Prime cost + Direct cost
  - Net Rate+ Over head & Profit
  - Material cost+ Plant cost + Labour cost
  - Site overhead cost + General over head
42. Concrete work is measured in Square meter in case of ;
- Beams
  - Columns
  - Screeds
  - Plinth beams
43. If there are unclear sections found in the drawing when you are doing take-off, the QS should forward ..... to the consultant;
- A claim
  - A Demand notice
  - A Query sheet
  - Suggested clarifications

44. The rate of plastering item depends on;
- Ratio of mortar
  - Specification of materials
  - Height of the place of work
  - All the above
45. What is the correct statement on the depth of an excavation?
- Shallow- The depth of excavation from 0 to 1.0m
  - Shallow- The depth of excavation from 0 to 2.5m
  - Deep- The depth of excavation greater than 4m
  - Medium - The depth of excavation from 1.5m to 4.5m
46. Cost Planning is a task of;
- Consultant QS and client's QS
  - Contractor's QS and the Ministry QS
  - Consultant QS and Contractor's QS
  - Contractor's QS and Subcontractor's QS
47. The most reliable estimate to secure funding for construction is;
- Preliminary estimate
  - Estimate based on floor area
  - Cube rate estimate
  - Detailed estimate
48. The document required to carry out construction activity and to make contract payments is;
- Fill volume calculations
  - Pile driving records
  - Labour wage check
  - Daily work report
49. Calculate the number of 300mm x 300mm floor tiles necessary for tiling a room with internal dimensions of 4500mm x 3000mm;
- 100 Nos.
  - 200 Nos.
  - 150 Nos.
  - 75 Nos
50. At site clearing, levelling the ground and spreading the loose material carried by using;
- Excavator
  - Grader
  - Scraper
  - Tractor

(01 x 50 = 50 Marks)



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**National Vocational Qualification Level 04**



**Time: 03 Hours**

**Instructions for the Candidates**

- Answer four (04) questions including question number one (01). (Question number one (01) is compulsory and total number of questions should be answered is four (04)).
- Use of Calculator, BSR and SLS 573 are allowed.
- Take off sheets, Bill Sheet, abstract sheet, query sheets are issued to use.
- Answer the questions in the spaces provided in the same question paper.
- This question paper consists of 05 pages.

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**Part 02**

1. You have been requested to **take off quantities** for Sub Structure works based on given drawings and specifications. Taking off should be in accordance with SLS573 (1999 - 1<sup>st</sup> revision). *You are allowed to use unmarked copy of the SLS573 (1999 - 1st revision) and standard dimension sheets and quarry sheets are also to be prepared by yourself.*

Where any information is missing, specification is inadequate or exact nature of the construction is unclear, you are required to make sensible assumptions. All assumptions made shall be entered on the Query Sheet for further reference.

Note: See the Specifications attached along with the drawing

You are required to:

- a) Prepare take off list up to DPC level
- b) Calculate length of Center line
- c) Do the take-off and, Schedule of Reinforcement
- d) Do abstract up to top of tie-beam Level

(20 Marks)



2. Prepare “All in unit Rate” for 1 m<sup>3</sup> of floor rendering of 12mm thick 1:3 Cement Sand mortar, finish smooth.

**Data**

- Cement 1.15 bags for 10m<sup>2</sup>
- Sand 0.15m<sup>3</sup> per 10m<sup>2</sup>
- Mason 08 hours for 100 ft<sup>2</sup>

**Prices (Rupees)**

- Cement Rs.1,850/= per bag
- Sand Rs.20,000/= per cube
- Mason Rs.3,500/= per day
- Helper Rs.2,000/= per day

You may add sensible assumptions for calculations and clearly state in the answer.

(10 Marks)



3. Bills of Quantities are the document completed for the purpose of bidding.

a) Briefly explain why written descriptions are required for bills of Quantities.

(03 Marks)

b) State five (05) benefits of Bills of Quantities to both Client and Contractor.

(05 Marks)

c) Define the term “Day works” and describe how the money is allocated for day works in the bills of Quantities.

(02 Marks)

4. Briefly explain the purpose of the following terms/Items added in the BOQ/or Interim payment applications

(2.5 x 4 = 10 Marks)

a) Provisional sum.

b) Materials at site

c) Price fluctuations



d) Liquidated damages

5. Prepare Summary of Interim payment application using the information provided below.

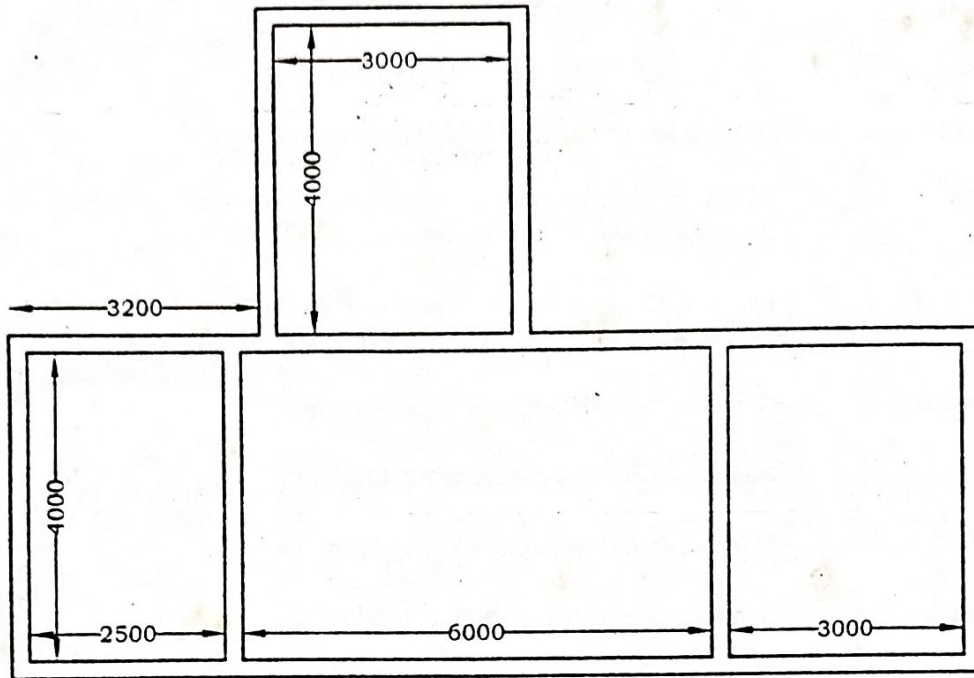
You may use a suitable template for the application.

Valuation for Bill No. 05 (End of January 2022)

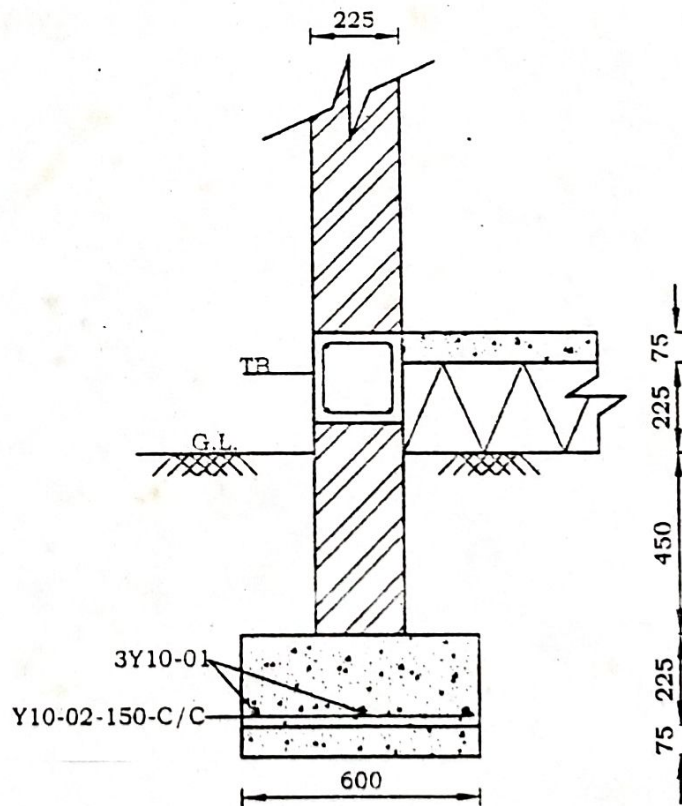
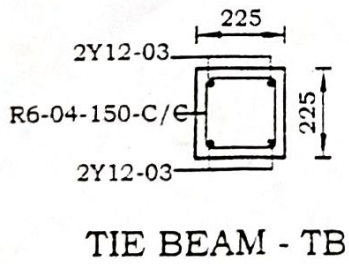
- Name of the project: Apartment complex at Colombo 06 to Sarana Developers, Colombo 05.
- Cumulative Value of work done =Rs. 55,225,200.00
- Variations =Rs. 3,550,012.00
- Price fluctuations =Rs. 55,0250.00
- Materials at site (80%) =Rs. 880,567.00
- Previous payment Made =Rs.43,576,697.00
- Client: =Sarana Developers PVT ltd.
- Contractor: =Akila Constructions (Pvt.) ltd.
- Contract Value =Rs. 105,000,250.00
- Project Duration =15 months
- Limit Retention =5% of contract sum
- Monthly deduction of retention =10% of value of work done
- Mobilization advance =25% of Contract sum
- Monthly deduction of mobilization advance =20% of value of work done
- VAT =15%

(10 Marks)





**PLAN**



**FOUNDATION DETAIL**

**FOUNDATION**

SCALE: 1:100 & 1:20

QS/SUB/04