



ELIZADE UNIVERSITY, ILARA-MOKIN  
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING  
FACULTY OF ENGINEERING

FIRST SEMESTER 2020/2021 EXAMINATION  
CVE 511 -CIVIL ENGINEERING MEASUREMENT AND  
EVALUATION -2UNITS

Instructions: A. This question paper consists of three (3) pages.

B. Each question carries equal marks of 20 each.

C. Answer **Question 1** and any other **2 Questions**. Answer  
**3 questions in all**

D. Write your **name** and **matric number** clearly on your answer sheets and the  
space provided below in your question paper

HOD'S SIGNATURE

**Time Allowed:** 2½ Hrs

**Question 1 - (20 marks)**

As a civil engineer/quantity surveyor to the Federal Government of Nigeria, you are required to submit a consultant price bill of a road project. This project is a 5km road across Seebi town. Along the route of the road, there are ten trees of 3-5m height, fifteen trees of 2-3m height and five trees of which height is below 1m, make provision also for general clearance. Along the path of the road we also have 2 stumps of diameter 160mm. During the construction of the road, about 8 houses will be demolished. 2 are made of brick works, 2 are made of timbers and 4 are made of concrete. There is a river of 3m width across the route of the roads. There is also a pipeline underground across the routes of the road.

Using the Civil Engineering Standard of Measurement, prepare a BOQ taking into consideration the general items, ground investigation (provision should be made for trial holes) and other processes you deem fit.

**Question 2 - (20 marks)**

a) If you are to build up unit rate for formwork to a reinforced slab in one storey building. State the factors that you will consider in the process. **(5marks)**

b) Considering a reinforced concrete beam of grade 40 (cement: 1kg, sand: 1.5kg, aggregate: 3kg) filled into formwork and parked around rod reinforcement (formwork and reinforcement measures separately). Calculate the cost per m<sup>3</sup> based on the present market unit rate. The data for the unit rate is as stated below;

**Data for the unit rate**

Cost of cement per tonne	₦ 30,000.00
Cost of sand per tonne	₦ 2,250.00
Cost of aggregates per tonne	₦ 2,900.00

Take density of cement to be 1440 kg/m<sup>3</sup>,

density of sand to be 1602 kg/m<sup>3</sup>,

density of aggregates to be 16800 kg/m<sup>3</sup> and

A 300 litres capacity mixer and is capable of mixing 3m<sup>3</sup> of concrete per hour for ₦10,000.00

It will also take a labourer 10 hours to place 1m<sup>3</sup> of concrete @ ₦ 600.00 per hour

Let the time for unloading all the cement be 1 hour @ ₦ 1, 500.00 .

Assuming you don't need the service of any craftsman here.

Let the profit and cost mark up be 15%

Wastage 10%,

Shrinkage 50% (15marks)

### Question 3 - (20 marks)

- What do you understand as building up rate from the first principle? (5marks)
- Prepare a priced bill of quantity for the substructure of two bedroom flat of your choice. (15marks)

### Question 4 - (20 marks)

4a. Define the following

- Cost Plus Fixed Percentage Contract
- Cost Plus Fixed Fee with Guaranteed Maximum Price with Bonus Contract
- Lump sum or fixed priced contract
- Provisional sum
- Preliminaries

10marks)

4b Explain the following terms as applicable in analysis of tender;

- Prequalification (mention the requirements for grading the contractors)
- Opening of tender (4marks)

4c) Compute the overall scores of the tenderers A, B, C and D shown in Table Q3<sup>1</sup> and Table Q3<sup>2</sup> using the marking scheme and formular approach where applicable. Based on the results, recommend a tenderer in each case for the job. (6 marks)

**Table Q3<sup>1</sup>:** Results of the various tenderers

Tender	Tender price (₦)	Tender Score	The Overall score
A	415,000,000.00	74	
B	478,000,000.00	69	
C	390,000,000.00	85	
D	512,000,000.00	88	

**Table Q3<sup>2</sup>: Results of the various tenderers**

Tender	Tender value	Performance rating	The Overall score
A	-18.89	54	
B	+4.17	65	
C	+3.25	59	
D	-10.95	76	

**Question 5 - (20 marks)**

5a. Mention and briefly explain 5 out of the branches of civil Engineering that you know. (10marks)

b. Explain the following;

- i. Dredging and filling (2marks)
- ii. Embankment and cutting (2marks)
- iii. Gravity retaining wall and sheet pile retaining wall (2marks)
- iv. End bearing piles and Friction piles (4marks)