Tertiary and Vocational Education Commission				
Construction Technology				
	NVQ Level 05 - Written Examination - Semester II - 2020			
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F45C001M10

**Three Hours** 

\*Answer all questions in Part A and one question in part B.

## Instructions to candidates:

- I. **Calculation** Attention to be drawn on methods of measuring dimensions, waste calculations, accuracy of dimensions, entering the dimensions in appropriate columns, clear and accurate work descriptions with standard abbreviations, abstracting and billing techniques.
- II. **Query Sheet** All Queries should be listed together in a Query Sheet with assumptions made and should be attached with your answer papers.
- III. Method of Measurement Your answers should be based on the Method of Measurement for Building works SLS 573 – 1999 (First Revision).
- IV. Non-programmable calculators can be used.

# Part A

## **Specifications**

- a. Site clearance
- b. Removing trees Remove trees of each 450 mm, 870 mm, 1000mm, 1100mm girth
- c. Column pit excavation disposal and back filling
- d. Trench excavation disposal and back filling
- e. Leveling bottom of excavation
- f. Rubble work Built in cements and mortar 1:5
- g. DPC 12 mm thick in cement sand 1:3 treated with 2 coats of hot tar on top & blinded with fine sand
- h. DPM 1000-gauge polythene laid on blinded hard core with 150 mm side & end laps
- Filling filling to make up levels to be of gravelly hard core obtained off site(imported), laid in 100 mm layers , well rammed, watered & consolidated & blinded with 50 mm thick fine sand

- Take out quantities up to the substructure using Annexure 01 & the given Specifications and drawings. (30 Marks)
- **2.** Prepare Abstract sheet and B.O.Q using Question No. 1 (30 Marks)
- **3.** Calculate the net unit rate for the mixing1m<sup>3</sup> of 1:2:4 (25) concrete using your knowledge about labour, material and plant outputs and cost information given below.

Using 10/7 mixture machine

The cost of one bag cement -Rs.1300.00

 $1m^3$  sand – Rs.7000.00

1m<sup>3</sup> metal – Rs.6000.00

10/7 mixer can be hire Rs.30000.00 (8 hrs.)

Ganger is paid Rs.1800.00

Operator is paid Rs.1500.00

U/labour is paid Rs.1200.00

## (20 Marks)

Mixture machine	Out put	Ganger	Operator	Labour	Wheelers	Man power
7/5	02	01	01	01	02	05
10/7	03	01	01	02	02	06

## <u>Part B</u>

4.	Briefly describe the terms mentioning below,	
	i) Front loading	
	ii) Day works	
	iii) Overhead and profit	
	iv) Advance money	(5×4 marks)
5.	i) Write down the components included in unit rate.	(5 marks)
	ii) Describe the types of estimating methods.	(5 marks)

 iii) Calculate the operational cost per hour a specific project as per the data given below by Diesel excavator machine of 0.25m<sup>3</sup> capacity.

- Purchase price 6,000,000.00
- Scrape value 600,000.00
- Life time of excavator 3000hour
- Tax and Insurance 10% of hourly depreciation.
- Repair and maintenance 25% of hourly depreciation.
- 16 liter of fuel is required per 8 hour day.
- Cost of fuel Rs.100.00 per liter
- 5 Liter of lubricant oil is required per week.
- (5day) cost of lubricant oil per liter Rs.80.00
- Hourly rate for operator Rs.250.00
- Extra four tires Rs.12, 000.00 per tire.

(10 marks)



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