

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF BUILT ENVIRONMENT**  
**DEPARTMENT OF QUANTITY SURVEYING**  
**PART II SECOND SEMESTER EXAMINATIONS – JUNE 2010**  
**CONSTRUCTION ESTIMATES AND PRICING – AQS2205**

Time: 3 Hours

Total Marks: 100

**Instructions**

Answer Question 1 and any other four (4).

NEC Labour rates, schedule to be provided.

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**QUESTION ONE (Compulsory)**

A church in Emakhandeni requires storage facilities. They have two options.

**Option 1**

Enclosing existing garage at the Pastor's marse.

(Sketch 1)

**Option 2**

Construction of storeroom 4, 50 x 3,00m

(Sketch 2)

The church has very limited financial resources and the general feeling is that **Option 1** could be affordable. One of the church members insists on **Option 2** and advises that he would donate money for the roofing (trusses, puslins, roofing sheets) and electrical works.

Using the approximate quantities method work out the cost estimates for both options to enable church to make a final decision.

**Use the following data**

Concrete grade 30

Reinforcement      90kg/m<sup>3</sup> in column bases  
                             180kg/m<sup>3</sup> in columns  
                             110kg/m<sup>3</sup> in ground floor slab  
                             200kg/m<sup>3</sup> in ground beams

You can assume the prices. (40 marks)

**QUESTION TWO**

a) A proposed project is situated outside the contractor's normal geographical sphere of operation. List the points which the estimator must observe when he makes a site visit before deciding on the tender figure. (5 marks)

b) Calculate the unit rate to prepare and apply 2 coats emulsion paint to wood float plastered walls from the following data.

Labour:- Painter Skilled Worker 1 is paid \$94,72/ 8 hour day

          He applies 12m<sup>2</sup> for first coat in 1 hour

          He applies 14m<sup>2</sup> for the second coat in 1 hour

Material:- Paint cost \$12,00 per 5 litre

          First coat 68m<sup>2</sup> per 5 litre

          Second coat 72m<sup>2</sup> per 5 litre

Use 10% waste where waste is expected and 12% of labour cost for brushes and sand paper.

(10 marks)

**QUESTION THREE**

a) Explain what the term "all-in-labour" means? (2 marks)

b) Calculate the all-in-labour rate per hour for a Skilled Worker Grade 1. Use the information on NEC publication provided. (5 marks)

c) Write short notes on the following

- i) Actual cost (2 marks)
- ii) Estimate cost (2 marks)
- iii) Quotation (2 marks)
- iv) Margin (2 marks)

#### **QUESTION FOUR**

If you have received tender documents for a factory extension, the construction to be completed in 3 months. Your planning department advises you that in order to complete the work on time you will have to allow for working the normal week, 8 hours a day Monday – Friday plus 6 hours on Saturdays.

a) Calculate the all-in labour rates for a Worker Grade 2 and Skilled Worker Grade 4. (The extra cost of overtime to be included in the all-in labour rate). (7 marks)

b) Explain with examples the following terms:-

- i) Site overheads (4 marks)
- ii) Head office overheads (4 marks)

#### **QUESTION FIVE**

a) Calculate the owning and operating cost per hour for a 3m<sup>3</sup> front end loader with pneumatic tyre it was purchased for \$50 000.00 and is expected to have a working life of 14 000 hrs (7years).

The contractor is expecting 7<sup>1</sup>/<sub>2</sub> interest per annum on his capital outlay and he has to pay \$600.00 per annum for taxes, \$584.00 per annum insurance, approximately \$760.00 for repairs and maintenance per annum and \$800.00 per annum for replacement of tyres . He also has to provide fuel and lubricants at a cost of \$84.00 per week. The operator for the loader is paid \$28.00 per 8 hours a day. The loader works an average of 35 hours per week. (9 marks)

b) What are the items that may be included in contract bills which falls under the contractor's establishment costs? (6 marks)

**QUESTION SIX**

a) A foundation trench is to be excavated on ordinary ground using hand labour. The mean of the trench is 250m and it is 1, 2m deep x 1, 50m wide. Calculate the cost and time it would take 2 men to excavate the trench if each man is paid \$2, 89/hour and can excavate  $1\text{m}^3$  in 3,75 hours?

(10 marks)

b) List the factors that may affect the contractor's final tender sum?

(5 marks)

**END OF EXAMINATION**