

RCT – Cost Estimation and Site Management

T125

Friday, 23/7/2021

08:30 - 11:30 AM

Names:

Index number

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

OPTION/TRADE: **ROAD CONSTRUCTION**

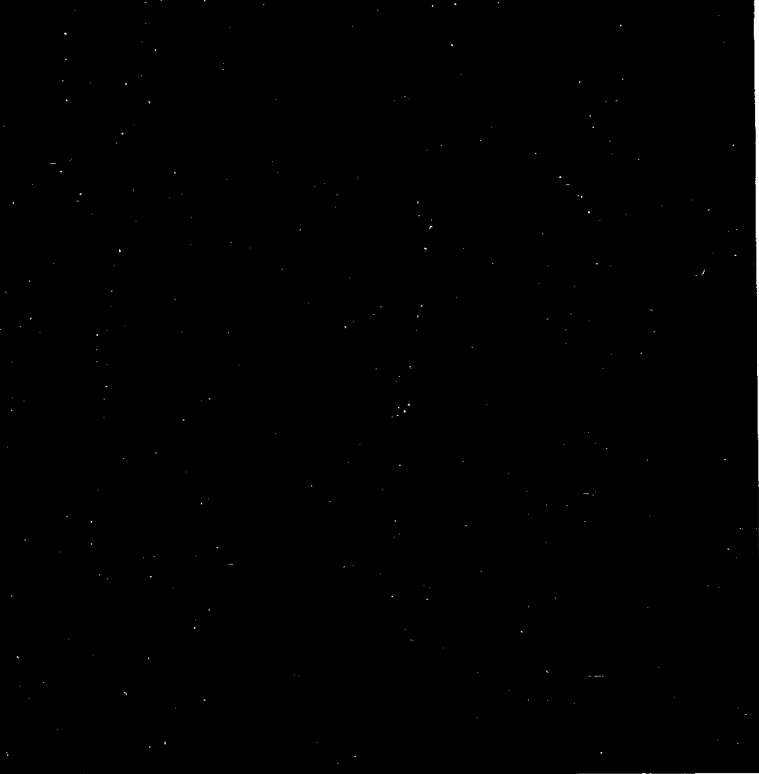
SUBJECT: Cost Estimation and Site Management

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) & (ii).

FOR EXAMINER'S USE ONLY

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TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

INSTRUCTIONS TO CANDIDATES: PART I (Answer Booklet)

1. A candidate should fill in the actual names and the index number on the cover of this questions and answer booklet on the provided place (Black Box).
2. It is illegal for a candidate to write any of his/her names, index number or a school name inside the answer booklet.
3. A candidate should check if all pages of the answer booklet are complete. No candidate should remove or tear any pages or part of it from the answer booklet.
4. A candidate should answer in the language in which the examination is set. (See page **(ii)**)
5. A candidate should sign on the sitting plan when submitting the answer booklet. He/she has also to check if the answer booklet is well sealed.
6. No extra paper is allowed in the examinations room. If a candidate is caught with it his/her results will be nullified.
7. No candidate is allowed to write answers not related to the subject being sat for, otherwise it will be considered as a cheating case.
8. Write your answers on the 12 lined pages (From page 1 of 12 to page 12 of 12).
9. Use the last non-lined pages as draft.
10. Results for any candidate who is caught in examination malpractices are nullified. The cheating can be recognized during examinations administration, marking exercise or even thereafter.

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

OPTION/TRADE: ROAD CONSTRUCTION

SUBJECT: Cost Estimation and Site Management

DURATION: 3 hours

INSTRUCTIONS TO CANDIDATES: PART II (Question Paper)

The paper is composed of two (2) Sections as follows:

Section I: Attempt all the Twelve (12) questions (60 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

Allowed materials:

- Ruler or square
- Calculator

Note:

Every candidate is required to carefully comply with the provided assessment instructions.

Section I : Attempt all the Twelve (12) questions (60 marks)

- (01) Differentiate minutes of meeting from photographs. (5 marks)
- (02) Mention four (4) forms of elaboration for particular cases at building site. (5 marks)
- (03) Outline any five (5) data collection about work done at building site. (5 marks)
- (04) Highlight at least five (5) contents of site report. (5 marks)
- (05) Mention five (5) methods of document site arrangement. (5 marks)
- (06) Define the following terms: (5 marks)
- a) Activity
 - b) Scheduling
 - c) Bill of quantity
 - d) Event
 - e) Planning. (5 marks)
- (07) a) Define the work breakdown structure
- b) Explain two (2) methods of work breakdown structure. (5 marks)
- (08) Differentiate lead from lag time. (5 marks)
- (09) List down any five (5) elements of bill of quantity. (5 marks)

- (10)** Calculate the carpet area if the floor area of the building is 500sqm and circulation area is 200sqm. **(5 marks)**
- (11)** Name at least five (5) SI basic units with their basic quantities and the corresponding symbols. **(5 marks)**
- (12)** A wall in brick is 4m of length, 3m of height and 30cm thick. Find the quantity of bricks for 600bricks/ m³ and their cost if the ratio is 40RWF/brick. **(5 marks)**

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

(13) a) Highlight any four (4) benefits of maintaining good site records.

b) Enumerate any six (6) steps of filling a meeting minutes. **(10 marks)**

(14) a) Draw the following network:

- Activity H follows G
- Activities J and K both follow H
- Activity O follows K only
- Activities L and P both follow J
- Activity M follows L
- Activity Q follows both P and O
- Activity N follows M
- Activity R follows Q
- Activity S follows both R and N

b) Explain the rules of network drawing. **(10 marks)**

(15) What is the duration in days to install 6000 square feet of walls shuttering if:

- a) Crew of 2 carpenters is used with output of 200 square feet/day
- b) Productivity is measured as 0.008 man-hour/square feet.
Number of carpenters=3, and number of working hours/day = 8 hours.
- c) Indicate the standard unit of measurement of each of the following elements used in quantity surveying (cost and estimation)
 - i) Roof covering
 - ii) Reinforcement bars
 - iii) BRC Mesh Reinforcement
 - iv) Concrete to foundation
 - v) Windows.

(10 marks)

- (16) a)** Calculate the quantities of mortar for plastering a circular column with 30 cm of diameter. The height is 4m.
- b)** State five (5) factors which an estimator should consider in pricing of construction materials.
- c)** The price of door is 45,000 Rwf excluding VAT. If VAT is charged at 15%, find the price of the door inclusive VAT.

(10 marks)

- (17)** Mr Heza wants to construct the fencing wall. Length is 15m, height is 2.4m and the thickness of wall is 0.2m. The size of brick is (20 cm * 9.5 cm * 7 cm). The joint is 1 cm

By using volume method, calculate the

- a)** Number of brick required
- b)** Quantity of mortar required
- c)** Rate of bricks when the cost of one brick is 30frw. **(10 marks)**

- (18) a)** Outline any three (3) elements which are included on a complete drawing.

- b)** What do you understand by “Bills of quantity”?
- c)** State any two (2) elements of bills of quantities
- d)** Outline at least two (2) uses of bills of quantities. **(10 marks)**

