



**NATIONAL EXAMINATION  
AND SCHOOL INSPECTION  
AUTHORITY**

**T108**

**Friday, 23/7/2021**

**08:30 – 11:30 AM**

**Names**

Index number

**TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021**

## QUESTIONS and ANSWERS BOOKLET

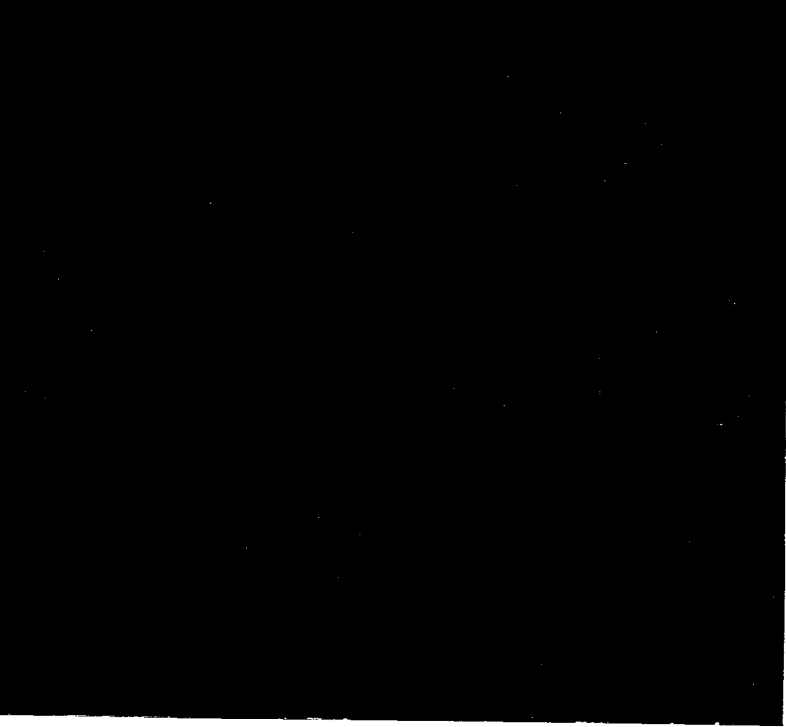
**OPTION/TRADE: LAND SURVEYING**

**SUBJECT: Performing Cadastral Measurement**

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) 8; (ii)

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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: LAND SURVEYING**

**SUBJECT: Performing Cadastral Measurement**

**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.** List down any five (5) cadastral documents. **5 marks**
- 02.** GEO-SURVEY Ltd is a company in charge of carrying out cadastral surveys and need to buy the surveying instruments to be used in cadastral data records:
- (a)** Identify any three (3) cadastral data records
  - (b)** State any two (2) instruments the company can buy. **5 marks**
- 03. (a)** Who can do a cadastral surveying?
- (b)** Explain any three (3) methods used for cadastral data records in cadastral surveying. **5 marks**
- 04.** List any five (5) duties of a cadastral surveyor. **5 marks**
- 05.** Two (2) neighbors have land at Huye District and they are disputing from the removed boundary beacon namely B. If the coordinates of boundary beacon B have been lost and those of boundary beacon A are (N800.00m, E650.00m);
- the horizontal distance from boundary beacon A to B is 334.56m and the bearing of beacon line AB ( $WCB_{AB} = 60^\circ$ ). Illustrate how Land Surveyor can locate mathematically the boundary beacon B. **5 marks**
- 06.** Differentiate land subdivision from land merging used in cadastral surveys. **5 marks**
- 07.** Boundary surveys are fundamental to GISs and LISs since knowledge about the land is meaningless unless its position on Earth is specified. In most modern systems being developed, positional data are established by associating attributes about the land with individual lots or tracts of ownership. What are five (5) mistakes in connection with boundary surveys? **5 marks**

- 08.** REG wants a land parcel to build in the sub-station in Musanze District. If the property belongs to Hirwa and has to be expropriated, what is the role of a Land Surveyor in the land valuation?

**5 marks**

- 09.** The table below indicates the coordinates of a rectangular parcel ABCDA in meters (m):

<b>Corner</b>	<b>Easting</b>	<b>Northing</b>
<b>A</b>	439181	4822196
<b>B</b>	439171	4822196
<b>C</b>	439171	4822211
<b>D</b>	439181	4822211

Estimate the perimeter of that rectangular parcel ABCDA.

**5 marks**

- 10.** List any five (5) users of cadastral data.

**5 marks**

- 11.** A Land Surveyor was given the task of land parcel subdivision located in Gasabo District. What are the procedures to follow for accomplishing that task?

**5 marks**

- 12.** Differentiate direct measurement from photogrammetric method.

**5 marks**

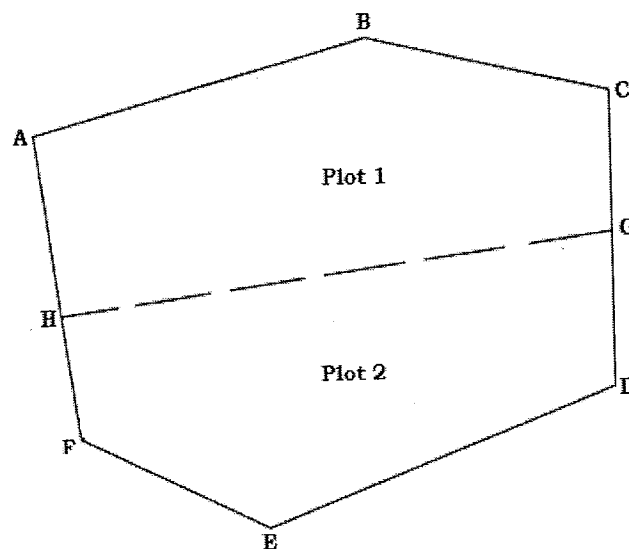
**Section II: Attempt any Four (4) questions out of Six (6) (40 marks)**

- 13.** Direct measurement and photogrammetric method are the two (2) main methods for cadastral surveying.

List any two (2) advantages and disadvantages for each method.

**10 marks**

- 14.** A professional Land Surveyor has checked the boundary lines of the two (2) disputing neighbors for their animals plot farm as indicated in the figure below:



The coordinates recorded for each plot corner by a professional Land Surveyor are:

A(N100, E802); B(N711, E802); C(N635, E852); D(N994, E902); E(N241, E952);

F(N884, E1002); G(N266, E1052); and H(N811, E1102) respectively.

How will he/she estimate in meters (m) the total length of each plot?

**10 marks**

15. (a) Differentiate the terms "Metes" from "Bounds" as methods of land demarcation.

(b) Give any three (3) types of beacons used in land boundary marking.

**10 marks**

16. (a) How can you define "land amalgamation"?

(b) Give any two (2) necessary conditions for two (2) or more land parcels to be amalgamated

(c) Write any three (3) possible advantages of land amalgamation.

**10 marks**

17. The coordinates of a parcel ABCDA in meters are given as:

Corner	Easting	Northing
A	1000	1000
B	1000	106.20
C	1634.80	271.20
D	2068.40	1699.30

(a) Compute the length of each course.

(b) Calculate the value of parcel ABCDA if one hectare cost 75,000Rwf.

**10 marks**

18. (a) How can you define the term "Land administration" as used in cadastral survey measurement?

(b) List any five (5) benefits of Land administration.

**10 marks**



