

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2021-2022

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 names, Index number or school name inside the answer booklet.
3. No candidate should remove or tear any pages or part of it in the answer booklet.
4. A candidate should answer in the language in which the examination is set.
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 16 lined pages (From page 1 to page 16).
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.

- N.B:** 1) After results publication, there is no remarking and no candidate is given his/her answer booklet for review. This answer booklet is a property of NESAs.
- 2) Claims are only received online within 30 days after results publication. A link will be provided after results publication.

T003_ Soil conservation

TVET NATIONAL EXAMINATIONS, RTQF LEVEL 5, 2021-2022

OPTION/TRADE: CROP PRODUCTION

SUBJECT: Soil conservation

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATES: PART II (QUESTION PAPER)

This Exam paper is composed of Two Sections (A, B). Follow the instructions given below, and answer the indicated questions for a total of 100 Marks.

Section A: Attempt all Fifteen (15) questions. (60 Marks)

Section B: 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 A: Attempt all Fifteen (15) questions. (60 Marks)

- 01. a)** Explain “Environmental Impact Assessment (EIA)”. **(4 marks)**
- b)** State any four (4) impacts of the soil erosion control on environment.
- 02.** Identify any five (5) advantages of collecting information relative to climatic conditions before establishing soil erosion control measures. **(5 marks)**
- 03.** Answer by **True** or **False**: **(5 marks)**
- a)** It is enough to wash your hands before using fertilizers.
- b)** Urea is compound fertilizer.
- c)** Organic fertilizer is long lasting and slow acting.
- d)** Bio-fertilizer is microbial inoculants either nitrogen fixing or phosphorus solubilizing bacteria.
- e)** Global warming is the problem associated with use of fertilizers.
- 04.** Differentiate transit theodolite from non-transit theodolite. **(3 marks)**
- 05.** Write down any two (2) advantages and disadvantages of bench terraces in Rwanda. **(4 marks)**
- 06.** Name any six (6) criteria which should be considered when selecting tools and equipment to be used in fertilizer application. **(3 marks)**
- 07.** Outline any four (4) methods of soil sampling. **(2 marks)**

T003_ Soil conservation

- 08.** Mention at least four (4) environmental problems associated with fertilizers. **(4 marks)**
- 09.** Identify any four (4) positive and negative impacts of fertilizer application on environment. **(4 marks)**
- 10.** Explain any four (4) ways in which soil loses nutrient. **(4 marks)**
- 11. a)** Outline any four (4) methods of liquid fertilizer application. **(5 marks)**
b) State any three (3) characteristics of inorganic fertilizers.
- 12. a)** Define soil sampling. **(5 marks)**
b) State any six (6) aims of soil sampling.
- 13.** Outline at least five (5) precaution measures to consider when using chemical fertilizers. **(5 marks)**
- 14.** Reduced level of Bench Mark A is 50.000m; reading on staff held at A is 2.435m, reading on staff held at station point B is 1.650m. **(4 marks)**
Find out:
a) Height of collimation.
b) Reduced level of station point B
- 15.** Find the slope in percent and per miles of a field with a horizontal length of 160m and a height difference of 24m between the bottom and the top of land. **(3 marks)**

T003_ Soil conservation

08. Mention at least four (4) environmental problems associated with fertilizers. **(4 marks)**
09. Identify any four (4) positive and negative impacts of fertilizer application on environment. **(4 marks)**
10. Explain any four (4) ways in which soil loses nutrient. **(4 marks)**
11. a) Outline any four (4) methods of liquid fertilizer application. **(5 marks)**
b) State any three (3) characteristics of inorganic fertilizers.
12. a) Define soil sampling. **(5 marks)**
b) State any six (6) aims of soil sampling.
13. Outline at least five (5) precaution measures to consider when using chemical fertilizers. **(5 marks)**
14. Reduced level of Bench Mark A is 50.000m; reading on staff held at A is 2.435m, reading on staff held at station point B is 1.650m. **(4 marks)**
Find out:
a) Height of collimation.
b) Reduced level of station point B
15. Find the slope in percent and per miles of a field with a horizontal length of 160m and a height difference of 24m between the bottom and the top of land. **(3 marks)**

T003_ Soil conservation

Section B: Attempt any Four (4) questions out of Six (6). (40 Marks)

- 16.** Discuss on four (4) practices applied to maintain the biological soil erosion control measures. **(10 marks)**
- 17. a)** In order to minimize the negative effects of the soil erosion, a farmer can apply mechanical soil erosion measures such as terraces. **(10 marks)**
Compare bench terraces and progressive terraces.
- b)** The control of the soil erosion is not an easy task and it involves the application of cultural and mechanical soil control measures. Compare Bunds and Ridges.
- 18.** Discuss on characteristics of sandy soil with clay soil and justify necessary improvements that make them more productive for farming. **(10 marks)**
- 19. a)** Provide the procedures of constructing bench terraces. **(10 marks)**
- b)** Suggest any six (6) operations to follow for making and flattening an embankment.
- c)** Provide any three (3) factors to consider during designing of progressive terraces.
- 20. a)** By using leveling staff, an observer made records as follow: **(10 marks)**
Upper reading was 1.65m
Lower reading was 0.59m
Determine the distance if the stadia factor is equal to 100.

T003_ Soil conservation

b) Suggest the procedures to be followed in slope determination by using N-frame.

21. a) Study the following collected data recorded for measuring the difference in elevation:

(10 marks)

Between points	Back reading (m)	Front reading (m)
A and C	0.58	1.45
C and D	0.72	1.84
D and E	1.32	0.77
E and F	0.14	1.59
F and G	2.02	0.69
G and H	0.25	1.1
H and B	1.13	0.35

- i. Calculate the difference in elevation between points A and B.
 - ii. Conclude about the position between A and B.
 - iii. If the horizontal distance from point A to point B is equal 17.40m, calculate the slope.
- b) Suppose that 50 meters are measured along the sloping ground and the height difference is 10m. Determine the horizontal distance and slope.

END OF QUESTION PAPER!