

Date: 25.07.2025 07:56 AM

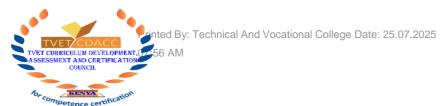
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AGRICULTURAL ENGINEERING LEVEL 6

ENG/OS/AGR/CR/02/6/: Technical And Vocational College Construct

Farms tead Structure's and Farm Roads July/August 2025

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TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

Time: 3 H @ rUhtRdSBy And Vocational College Date: 25.07.2025 07:56 AM

INSTRUC CANDIDATE

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1. This paper consists of TWO sections: A anPdrinBe.d By And Vocational College

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- 2. Attempt ALL questions in section A and ANY THREE (3) questions in section B.
- 3. Marks for each question are indicated in the brackets.

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- 4. Candidates are provided swith as separate answer booklet
- 5. Do not write on the question paper.

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Date: 25.07.2025 07:56 AM This paper consists of FOUR (4) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.



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SECTION A (40 MARKS)

Attempt ALL the questions in this section.

- 1. Proper to equality and edurable wood products. State FOUR advantage $\stackrel{\text{D}}{s} \stackrel{\text{d}}{o} \stackrel{\text{d}}{f} \stackrel{\text{2.5.0}}{w} \stackrel{\text{0.7.2025}}{o} \stackrel{\text{2.5.5}}{d} \stackrel{\text{d}}{a} \stackrel{\text{M}}{s}$ (4 Marks
- 2. Construction of farm structures requires of correct tools and equipment which varies from one structure to another. Outline FOUR ways of ensuring there is proper maintenance of Printed By Technical And Vocational College the construction tools in the farm. (4 Marks)
- 3. Strong foundation requires the use of the right materials in the right proportions for strong Printed By: And Vocational College and durable structures. State FOUR factors at the asts affected three settern gth of concrete. (4 Marks)
- 4. Construction materials have got their advantages and disadvantages. Identify FOUR advantages of using steel reinforced concrete during construction of farm structures.

(4 Marks)

5. Farm roads play an important role in ensuring that farm activities are carried out effectively and efficiently. Outline FOUR steps involved in constructing farm roads.

(4 Marks)

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- Date: 26.07D @35ign: 56 fAa/nimal structures is very key when it comes to high productivity and durability.

 Identify FOUR factors that should be considered when siting a beehive. (4 Marks)
 - 7. In the farm it is always important to have amenities and recreational facilities which gives workers and the farmer time to rest as a wayrioff in the product to the pate: 25.07.2025 07:56 AM

 examples of farmstead amenities structures. (4 Marks)
 - 8. A newly constructed zero grazing unit is to be commissioned and start operations. Outline Printed By Technical And Vocational College

 Date: 2 F. O. U.R. 5 m7a in ACNO mponents it must possess for it to be deemed good for use. (4 Marks)
 - 9. A famer has been having challenges with his fear my beeco in learning passar ble during Date: 25.07.2025 07:56 AM rain seasons as a result of poor-quality materials used in construction. You have been tasked to advice on the materials selection for the road construction. Outline FOUR factors Printed By Technical And Vocational College you will consider on, top of the quality of the materials. (4 Marks)
 - 10. As an agricultural engineer you been tasked to design and construct greenhouse in a given farm. Your first assignment is to carry out a site visit as feasibility study. List FOUR

Pinted By. /eroptu/i pornation at 1 \$\phi_0 the sw ill be required to carry during the assignment.

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SECTION B (60 MARKS)

Attempt Any THREE Questions in This Section

- 11. Metameta Farm pladra facility for drying and preserving their farm produce in preparatio nafeor 25m a rive for distribution. To achieve this, they have hired an agricultural engineer to design and oversee the construction of the structure, specifically for maize production. As the first step, the engineer is expected to conduct a feasibility study and Printed By Technical And Vocational College present a detailed report on the findings.

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 - a. State FOUR reasons why feasibility studies need to be carried out before construction work begins.

 Printed By Technical And Vocation (4 M a r k s)

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 - b. Describe EIGHT Engineering design steps he would consider while undertaking the exercise. (16 Marks)
- 12. A standard pig stay is a specially designed shelter used in pig farming to provide pigs with a safe, clean, and comfortable environment for living, feeding, and breeding.
 - a. Outline SEVEN factors to consider when constructing a pig sty. (7 Marks)
- b. Explain FOUR parts of a standard pig stay unit. (8 Marks)

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Date: 25.07.202 $\mathfrak{E}_{07:}$ $\mathfrak{Q} u_{A} t_{M}$ line FIVE Maintenance practices carried out on a standard pig stay. (5 Marks)

13. Timber is widely used in construction due to its strength, availability, and ease of use. However, because it is a natural material, timber is vulnerable to threats such as decay, insect attacks, moisture damage, and fire. Therein ham cabrilliety instruction got he particles of the particle

Pinted By. And Vocational College ethods of treating timber as a building material Date: 25.07.2025 07:56 AM

(10 Marks)

- b. A concrete beam measuring 10m by in 0=5 max buy in 0 ion generon crete mix proportion by dry bas Diaster of 251.0.73:250.25 G0 i7v 5 e in 4 V hat:
 - Density of cement = 1440 kg/m³
 - Pirite d By Technical And V scational Cdge Date: 25.07.2025 07:56 AM
 - Density of ballast = 1650kg/m^3
 - Water cement ratio = 0.45

Printed By. •al An 50 ok gti BhalgColfe coment = 37 litres

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Ignoring the volume of reinforcing rods, 30% material waste and shrinkage, determine the following;

- (i) Number of 50 kg bags of cement required (4 Marks)
- (ii) Weight of ballast required in tons (2 Marks)
- (iii) Weight of sand required in tons (2 Marks)

(iv)Amount of water required to mix the concrete in litres

- 14. Construction of far citutres requires proper documentation and reporting of all the operations are recovered to the operations.
 - (a) Explain FIVE advantages of integrating construction reports into the day-to-day activities of a construction project. (10 Marks)
 - Printed By: And Vocational College (b) Explain FIVE features that should be included in a daily construction report. Date: 25.07.2025 07:56 AM

(10 Marks)