



T043

08:30 – 11:30 AM

Names:

Index number

TVET NATIONAL EXAMINATIONS, RTQF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

OPTION/ TRADE : MASONRY

SUBJECT : Concrete Technology

ACADEMIC YEAR: 2020-2021

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

FOR EXAMINER'S USE ONLY

[illegible]



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: MASONRY

SUBJECT: Concrete Technology

DURATION: 3 hours

INSTRUCTIONS TO CANDIDATES: PART II (Question Paper)

The paper is composed of two (2) main 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 and 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)

1. Identify any five (5) PPE required to be used by a mason.
(5 marks)
2. Gasaro is going to choose aggregates used in cement pavement of a market. What are the five (5) qualities of aggregate to base on while selecting aggregate?
(5 marks)
3. Differentiate OPC from PPC types of cement.
(5 marks)
4. Define the following terms used in concrete:
(5 marks)
 - a) Fine aggregate
 - b) Coarse aggregate
5. Identify any five (5) types of covering blocks based on the type of material used.
(5 marks)
6. Enumerate any five (5) structure elements of a simple building which can be constructed in R.C.C.
(5 marks)
7. Shrinkage is defined as contracting of a hardened concrete mixture due to the loss capillary water. List down any five (5) causes of shrinkage.
(5 marks)
8. Compaction of concrete is necessary for concrete work for different purposes; indicate at least five (5) reasons why concrete is compacted.
(5 marks)

9. After pouring and casting concrete, how many days are required for removing the supports for slab and beams? Why? **(5 marks)**
10. (a) What are the main types of concrete?
(b) List down the ingredient of mass-concrete. **(5marks)**
11. What is the common proportioning of cement, sand and coarse aggregates adopted for various concrete works? **(5 marks)**
12. Differentiate the initial setting time from final setting time. **(5 marks)**

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

- 13.** Calculate the quantity of materials required (Cement, Sand and Coarse aggregates) for the following items: R.C.C of 1:2:4 for 20 m³ of work. For 1m³ wet concrete=1.52, dry concrete approximately specific weight of concrete is 1440kg/m³. **(10 marks)**
- 14.** Identify different ingredients used in concrete and explain the role of each one. **(10 marks)**
- 15.** Highlight any ten (10) procedures followed to find out the bulking factor of sand. **(10 marks)**
- 16.** Water used for making concrete should be clean. It activates the hydration of cement and forms plastic mass, the cement powder when mixed with water forms a paste. This paste acts like glue and holds or bonds the aggregates together:
- a.** What is the water cement ratio?
 - b.** If the water cement ratio was 0.6, calculate the quantity of water required for one bag of cement. **(10 marks)**

17. A team of inexperienced masons wishes to have more knowledge and skills about accepted method of mix design, to meet the requirements of a good concrete. As an experienced mason:
- a. What are functions of admixtures to concrete?
 - b. Explain any five (5) tools or equipment used in reinforced concrete according to their usage. **(10 marks)**
18. a) Enumerate any five (5) factors that determine which type of transportation of concrete is most suitable.
- b) State the role of curing concrete. **(10 marks)**

