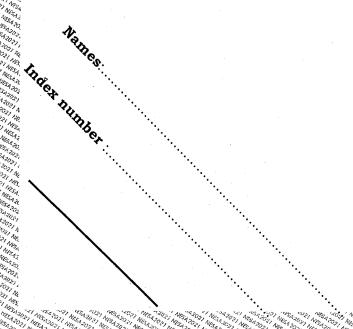


MAS – Concrete Technology
T043
Wednesday, 21/7/2021
08:30 – 11:30 AM



# 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).

27/ MEG 205/ ME 405/ ME

#### FOR EXAMINER'S USE ONLY

QUESTIONS	1	2	3	4	5	6	7	8	9	10	Total
Marks											
QUESTIONS	11	12	13	14	15	16	17	18	19	20	Total
Marks											
QUESTIONS	21	22	23	24	25	26	27	28	29	30	Total
Marks											



## 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: FART 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.

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)

- 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)

- 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)