



**NESA** NATIONAL EXAMINATION  
AND SCHOOL INSPECTION  
AUTHORITY

**CAP – Roof and shuttering  
construction**

**T039**

**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: CARPENTRY**

**SUBJECT: Roof and shuttering construction**

**ACADEMIC YEAR: 2020-2021**

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

**FOR EXAMINER'S USE ONLY**

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

# 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: CARPENTRY**

**Subject: Roof and shuttering construction**

**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)**

- 01.** Explain the following formwork terminologies:  
a) Formwork drawing  
b) Staging  
c) Primary runner  
d) Secondary runner. **(5 marks)**
- 02.** List and explain the main aspects and mistakes to be avoided during the form working Process. **(5 marks)**
- 03.** State any five (5) safety precautions respected while constructing formwork. **(5 marks)**
- 04. a)** Explain the term "Supporting period"  
**b)** The time from which the concrete is placed in formwork till the time the formwork is removed is called as supporting period. This will vary, based on different factors, List down those factors. **(5 marks)**
- 05.** List any five (5) techniques of leveling shuttering on the workplace. **(5 marks)**
- 06. a)** Define the term "Adhesive"  
**b)** List and explain the types of natural adhesive. **(5 marks)**
- 07.** A roof has a span of 5.500m and a pitch of one third (1/3).  
Calculate the rafter length. **(5 marks)**
- 08.** What are the erection sequences for constructing suspended floor slab? **(5 marks)**

**09.** What are the disadvantages of timber formwork? **(5 marks)**

**10.** A rectangle has depth of  $D=4$ , let one side length is  $L=1\text{m}$  and breadth is  $b=0.8\text{m}$ . Calculate the peripheral length and total shuttering area.

**(5 marks)**

**11.** The column formwork of cylindrical shape has a diameter of  $0.20\text{m}$  and height of  $2.5\text{m}$ , calculate its volume. **(5 marks)**

**12.** State the advantages of Steel formwork compared to timbers formwork.

**(5 marks)**

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

13. Enumerate and explain the external effects for the concrete other than formwork striking times. **(10 marks)**
14. What are the precautions that should be taken during the removal of the Formwork? **(10 marks)**
15. a) Define the term shuttering oil  
b) List and explain the types of shuttering oil. **(10 marks)**
16. State five (5) types of formwork according to the shape or structure. **(10 marks)**
17. a) State any five (5) requirements of good formwork.  
b) The initial cost of metal formwork is more than that of timber formwork but the number of reuses of metal formwork is higher than that of timber. Explain the above statement. **(10 marks)**
18. Indicate any five (5) circumstances or the causes of formwork failure. **(10 marks)**

***Do not write anything on this page !***



