

PWO – Construction Technology

T020

Tuesday, 05/11/2013

1:30 – 4:30 PM

WORKFORCE DEVELOPMENT AUTHORITY



P.O.BOX 2707 Kigali, Rwanda Tel: (+250) 255113365

**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2013;
TECHNICAL AND PROFESSIONAL TRADES**

EXAM TITLE: Construction Technology

OPTION: Public Works (PWO)

DURATION: 3hours

INSTRUCTIONS:

This paper contains **three (3)** Sections:

Section I: Fifteen (15) questions, **all compulsory.**

55marks

Section II: Five (5) questions, choose any **three (3).**

30marks

Section III: Two (2) questions, choose any **one (1).**

15marks

The use of calculator is admitted

Section I: All questions are Compulsory.**55marks**

01. Clarify the aggregates according to their manufacturer. **2marks**

02. Complete the table below: **3marks**

No	Name of tool	Use
1	Spirit level	?
2	Blaster	?
3	Wheelbarrows	?

03. What are the 4 methods of determining the bearing capacity of soil? **4marks**

04. Answer the following questions by **Yes** or **No**

a) The profiles are collective tools. **1mark**

b) The plumb bob is individual tool. **1mark**

c) The line cement mortar is composed of sand, cement, lime and water. **1mark**

d) The building line is individual tool. **1mark**

05. With relevant examples, mention different categories of construction materials. **6marks**

06. What are the 3 qualities of a good concrete? **3marks**

07. Give the 4 different methods to apply for setting of right angle of building. **4marks**

08. List any 8 structures in which stones have been used in building construction. **4marks**

09. What are the two (2) various classes of stonework? **1mark**

10. What are the 4 different ways in which stones may be classified? **4marks**

11. What are the characteristics of a good line? **4marks**

12. List any 5 various types of paint. **5marks**

13. a) What is the water cement ratio applied in the mixing of concrete? **1mark**

b) What are the three (3) varieties of lime? **3marks**

14. What are the qualities from which the choice of stone as building material depends on? **4marks**

15. Why do you think paint is an essential liquid to be applied on the surfaces of timber and other materials? **3marks**

Section II: Choose and answer any Three (3) questions

30marks

16. a) What are the dependent factors in transporting concrete? **9marks**

b) What is the role of cement in building construction? **1mark**

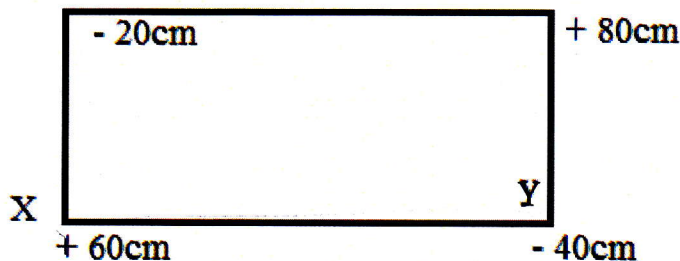
17. What are the different tests of cement? **10marks**

18. A water tank in circle shape is constructed in stones with cement mortar. Its inner diameter is 2.80m and the outer diameter is 3.40m. If the height of water tank is 2.50m; determine:

a) The volume of stonemasonry **8marks**

b) The cost of stonemasonry for 55 000 Rwf/m³ **2marks**

19.



a) Find the cross-section following X and Y and indicate the passage point by Z. **4marks**

b) If XY = 10m, Find the distance (a) between X and Z observing the cross-section. **6marks**

20. Using plan view (sketch), show the column of 1 and ½ brick (give 2 methods). **10marks**

Section III: Choose and answer any one (1) question

15marks

21. a) List any ten (10) types of bonds used in masonry with bricks. **11marks**

b) What are the 2 types of concrete? **4marks**

22. a) Outline any nine (9) characteristics of a good stone to be used in construction. **9marks**

b) Give the 4 different methods of stone quarrying. **6marks**