

Quantities and Estimates
F4BA-6040

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

Probatoire Technique Examination

JUNE 2016

Date: Friday 27-05-2016

Series/ Specialties	Civil Engineering (Building Construction Option) (F4BA)
Subject Title	Quantities and Estimates
Subject Code No.	F4BA-6040
Type of Exam	WRITTEN
Weighting (Cocf.)	SEE INSIDE

Duration: 8:00 - 11:00

General Instructions

*You are reminded of the necessity for good English and orderly presentation of your material.
Where calculations are involved show your working, giving your answer at each stage.*

Content: QUESTIONS

Specific Instructions

Turn over

QUANTITIES & ESTIMATES

- No documents are allowed except those given to the candidates by the examiners
- Candidates can use non programmable scientific calculators
- Before you start work make sure that you have from sheet 1/3 to sheet 3/3

THE PAPER IS MADE UP OF TWO INDEPENDENT PARTS

PROJECT DESCRIPTION

The Mayor of your locality decides to lay culverts to bridge a road section that collapsed. For the purpose of this project, a call to tender was launched to select a company for the realization of the said work.

Part one : **STUDY OF TENDER DOCUMENTS DOSSIER DE CONSTRUCTION** : 8 mks

At the end the tender procedure, the job was awarded to « Ets TANOR Construction Limited », a company that also tendered for the job. This company was selected based on the fulfillment of qualification criteria of the tender board.

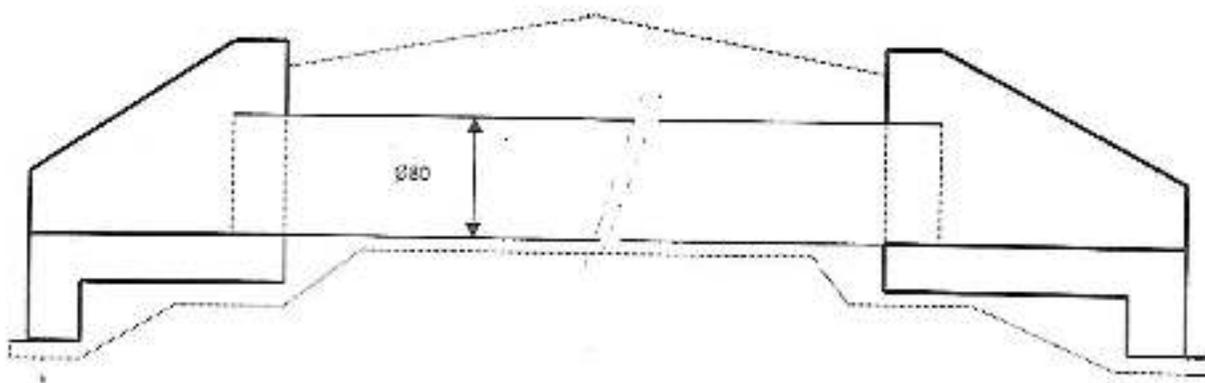
Work required :

- 1) Define the term Tender file. 1 mk
- 2) Differentiate between Open tendering and Restricted Tendering. 2 mks
- 3) Define submission ; 1 mk
- 4) Name four qualification criteria of a company during the procedure of awarding contracts. 2 mks
- 5) One of the administrative clauses of a contract stipulates that the selected company is entitled to instalmental payments during the execution of the work.
 1. Define instalmental payment. 1 mk
 2. What condition should be fulfilled by a company to benefit from instalmental payments? 1 mk

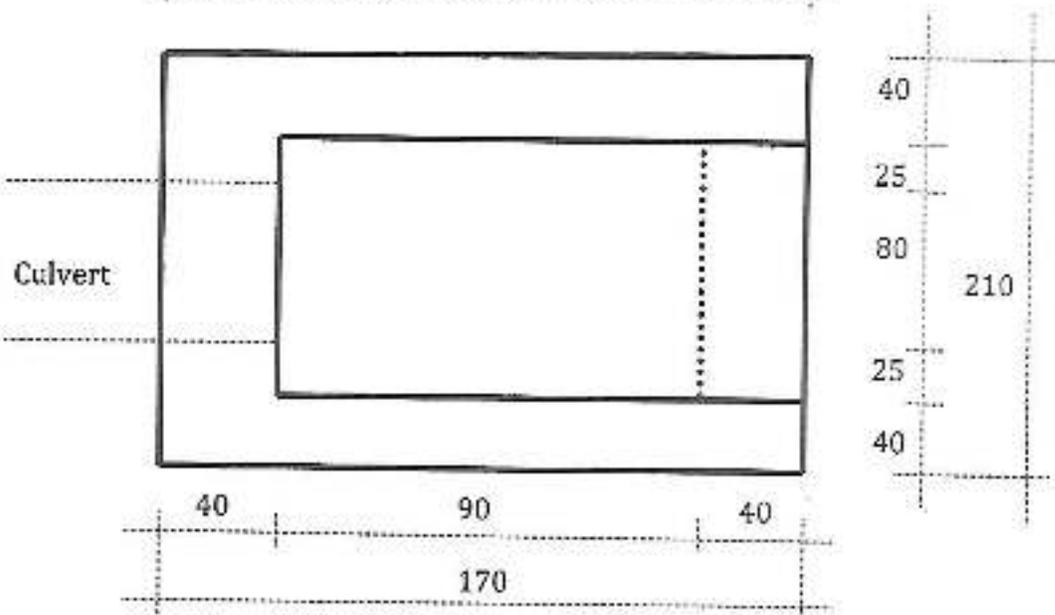
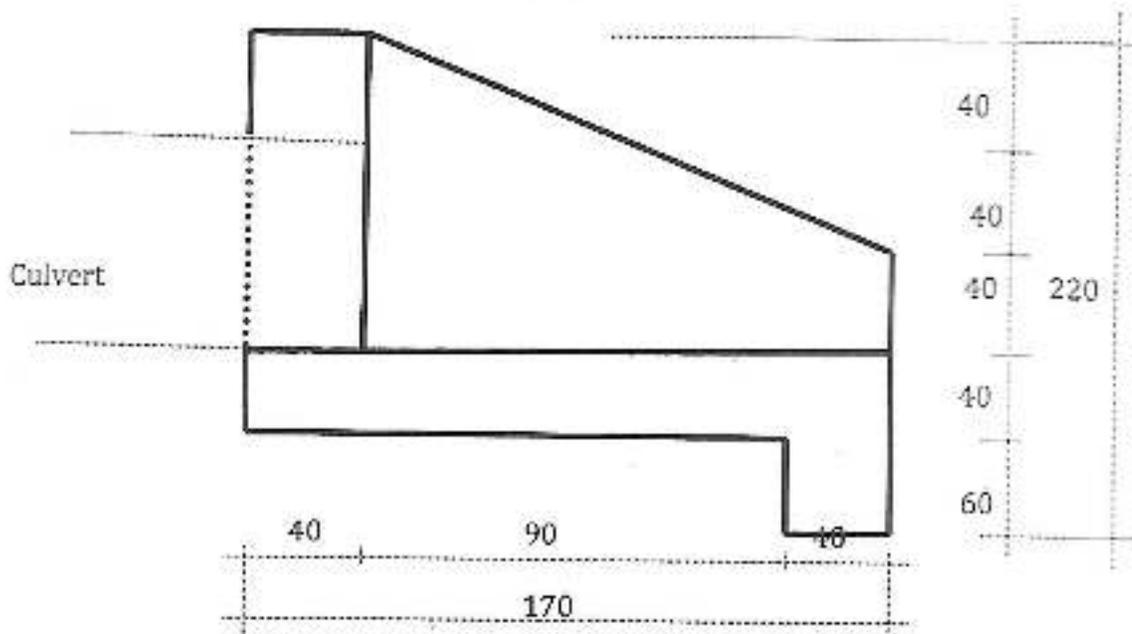
Part two: **CALCULATION OF QUANTITIES** : 12 mks

The structure to be realized is a metallic culvert (ring) of diameter 80 cm and the two culvert heads shall be of reinforced concrete. The structure is represented in the diagrams of page 2/3 below:

Longitudinal section of the whole project



Vertical and horizontal section of the culvert head $\varnothing 80$



The concrete mix design gave the following components:

N°	Materials	Mix	Losses %
1	Cement CPJ 35 of 50 kg	350 kg/m ³	6
2	Sand	400 l/m ³	5
3	Gravel	800 l/m ³	5
4	Water	150 l/m ³	4
5	Steel	25kg/m ³	3
6	Timber of 6m	4m/m ²	1

calculate :

1. The volume of reinforced concrete required for the realization of a culvert head. **3.5 mks**
2. The total volume of reinforced concrete. **1 mk**
3. The surface area of formwork required for one culvert head. **3.5 mks**
4. The total surface area of formwork. **1 mk**
5. Let the total volume of reinforced concrete be 6.5 m³ and the total surface area of formwork is 25 m². Establish the order of materials. **3 mks**