CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

Technical and Vocational Education Examination

JUNE XXXX **ADVANCED LEVEL**

Specialty Name (Specialty Code)	**ARCHITECTURAL DRAFTMANSHIP CE-AD(F4 BE)**
Subject Title	**Architectural Technology and Practice**
Paper No.	**2**
Subject Code No.	**7200**

Three hours

INSTRUCTIONS TO CANDIDATES

This paper is made up of three sections A, B and C.

Candidates are expected to answer one question in section A, three questions in section B and one in section C.

All question carry equal marks.

You are reminded of the necessity for good English and orderly presentation in your answers.

You are advised to read carefully through the question paper, before you begin your answers.

SECTION A: FEASIBILITY STUDIES

QUESTION ONE: **(20marks)**

a) How is surface investigation done **(3 marks)**

b) After site investigation, it was concluded by the engineer that the soil has to undergo stabilisation before works starts. State two reasons why stabilization is necessary on some soils **(3 marks)**

c) If electrical cables are discovered underneath the building area, what precautions are you going to take to see that the building is done **(3 marks)**

d) State two investigation site tests that you know **(3 marks)**

e) Explain two methods of sampling **(4 marks)**

f) If the site is discovered to be marshy, which foundation can be suitable and why **(4 marks)**

QUESTION TWO: **(20marks)**

(a) Define feasibility studies **(1mark)**

(b) List five activities that are always done during feasibility studies **(5 marks)**

(c) State five reasons why these studies are necessary before a project is implanted. **(5 marks)**

(d) What are some of the four equipment used for feasibility studies? **(6 marks)**

(c) State some two discoveries each beneath and on surface after the feasibility studies. **(3 marks)**

SECTION B: STRUCTURES AND FINISHINGS

QUESTION THREE: **(20marks)**

(a) All technical structures are made with joints or links

(i) Define a joint **(1mark)**

(ii) Draw the following joints: **(6 marks)**

(ii) -1 in-situ concrete footing and flexible concrete pillar

(ii) -2 concrete footing and wooden pillar

(ii) -3 Metallic rafter to purlin

(b) State three methods by which the drainage of this site can be done **(3marks)**

(c) Describe one method to be used in draining this site. support your description with a neat sketch **(4marks)**

(d) Soil analysis also shows that the area is marshy.

(i) Name three types of foundations that will suite the structural loads. Support your answer with a sketch of at least one type. **(4marks)**

(ii) State two differences between bored or replacement piles and driven or displacement piles **(2 marks)**

QUESTION FOUR: **(20 marks)**

(a) What is a short bored pile **(1mark)**

(b) List two causes of foundation settlement. **(3 marks)**

(c) Differentiate with the aid of sketches : deep strip, wide strip and step foundations **(6 marks)**

(d) Outline four defects which can be observed in hardened concrete surfaces **(4 marks)**

(f) (i) State three reasons why underpinning operation can be needed on the site. **(3 marks)**

(ii) The length of each underpinning bay depends on some factors. Name any two. **(3 marks)**

QUESTION FIVE:

Due to the heavy noise from the machinery that will be installed in the building, musical instruments for practice and other facilities, the structure shall be insulated against sound and heat.

(a) Differentiate between sound and thermal insulation **(4 marks)**

(b) List two common materials used for sound insulation **(3 marks)**

(c) Name four different parts of a structure where insulation is used **(4 marks)**

(d) State three advantages of using curtain walls in a large building **(3 marks)**

(e) Name three causes and consequences of poor adherence bond

between steel and concrete **(6 marks)**

QUESTION SIX: **(20 marks)**

(a) Define the following and give two examples in each; **(9 marks)**

(i) Sheet pile
(ii) Caisson
(iii) Cofferdam

(b) In each give two differences between a culvert and a bridge. **(3 marks)**

(c) Distinguish between an abutment and a pier. **(3 marks)**

(d) Sketch a ground anchor and name the following parts: **(5 marks)**

(i)-Elastic length,
(ii)- Anchorage length,
(iii)-Tendon,
(iv)- Recessed anchorage,
(v)- Retaining wall

SECTION C: DRAINAGE AND SERVICES

QUESTION SEVEN: **(20marks)**

For effective water evacuation of the area, the entire surface outside the compound shall be paved.

(a) The pavement shall be of concrete of thickness 10cm. It will rest on a well compacted sand bed of 10cm thick on a 15cm hardcore.

(i) Draw a labelled cross section sketch of this pavement **(4marks)**

(ii) Give the role of each part **(4 marks)**

(b) Differentiate between the septic tank and soak away. **(3 marks)**

(c) Draw and labelled a section through a septic tank **(3 marks)**

(d) State the four conditions that necessitate the construction of an inspection chamber **(4 marks)**

(e) Differentiate between foul water and surface water **(2 marks)**

QUESTION EIGHT:

(20 marks)

Towards the completion of a building, there was need for water supply and sanitary installations

(a) Name four sanitary appliances found in a domestic building **(4 marks)**

(b) With the aid of a neat sketch show how water can be gotten on the site through gravity **(8 marks)**

(c) From the electricity board, give the functions of the following units **(6 marks)**

(i) Meter
(ii) Service fuse
(iii) Circuit breaker

(d) What is the purpose of an earth connection **(2 marks)**
