DRAWING AND ARCHITECTURAL MODELING 2
7205

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

Technical and Vocational Education Examination

JUNE XXXX **ADVANCED LEVEL**

Specialty Name (Specialty Code)	**ARCHITECTURAL DRAFTMANSHIP CE-AD(F4BE**
Subject Title	**DRAWING**
Paper No.	**2**
Subject Code No.	**7205**

Four hours

INSTRUCTIONS TO CANDIDATES

This paper is made up of three Questions

Candidates are expected to answer only two sections:

- **Section A is compulsory**
- **Candidates can chose either section B or C.**

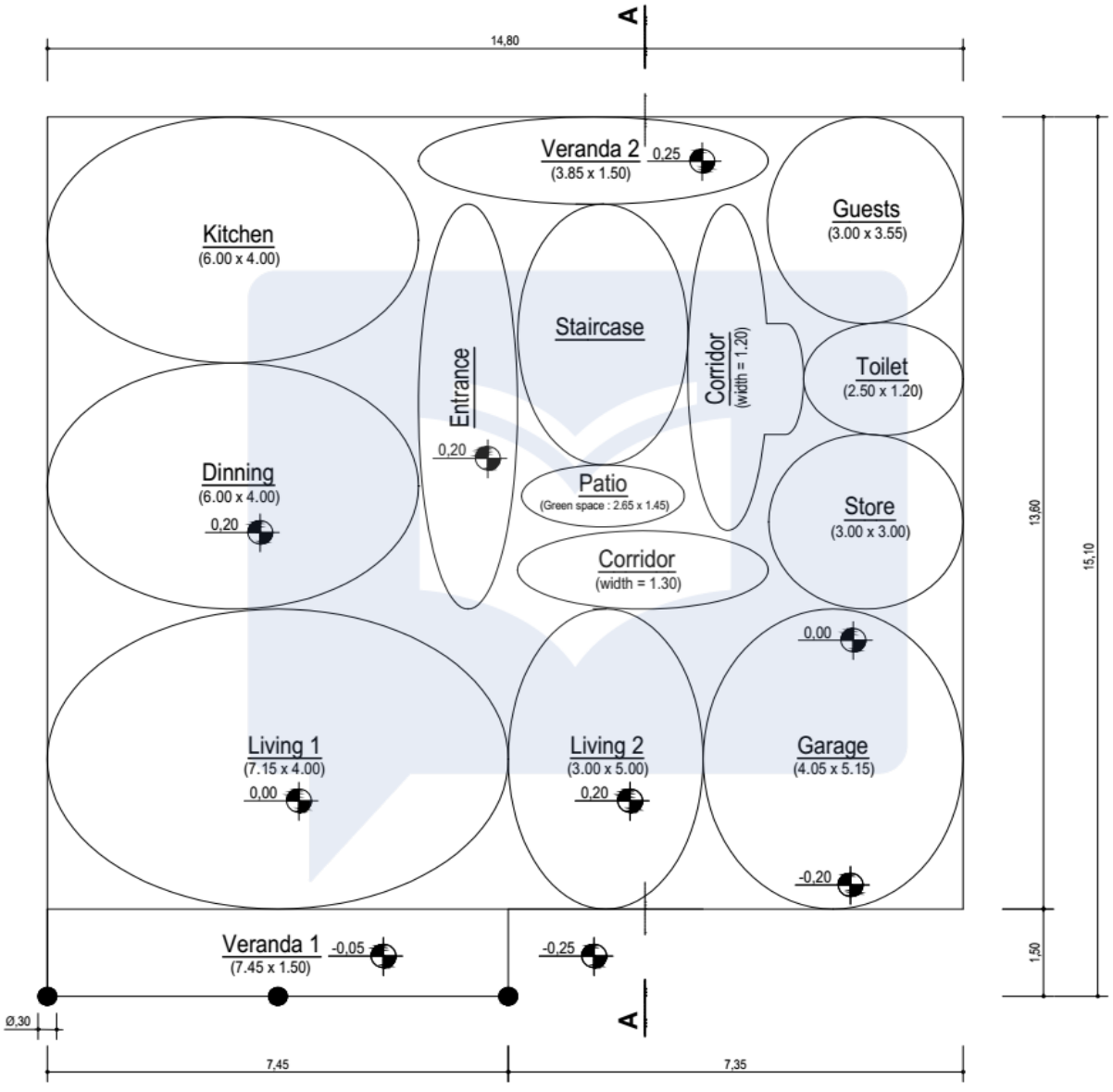
You are reminded of the necessity for good English and orderly presentation in your answers.

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

SECTION A: (50marks)

THE CONSTRUCTION OF A THREE ROOM STANDARD HOUSE

The sketches below represent a three (3) room standard house to be constructed on a sloppy area. The surface area on which the project will be carried out is 18.00 x 28.00 m.



GROUND PLAN

(Not to scale)

Partial description:

The difference in level between the south elevation and north elevation is 0.60 m.

Ground floor: the ground floor slab is made of a 10 cm thick concrete slab cast on a draining ground floor. The finished level of the internal ground floor is ± 0.00. A steep of 20 cm high will be constructed at the main entrance of the parlour (front elevation).

Walls: thickness of walls,
External walls: 15 cm.
Between the parlour and room 1, the parlour and main entrance, Room 1 and Toilet: 10 cm.

N/B: all the beams have the same thickness of 15x40cm

Dimensions of openings:

Rooms	Doors (lxh)	Windows (lxh)
`		
Living 1	1.50 x 2.10	2x(1.50x1.10) At the veranda
Living 2	Empty opening of 2.00 x 2.10 at 2,50 (at the front elevation 1,20 at the main entrance side	1,50 x 1,10
dining		1.50x1.20
Kitchen	0,80 x 2,10	1,60 x 1,20
Bedrooms	0,85 x 2,20	
Toilet	0,75 x 2,20	0,70 x 0,70

WORK REQUIRED:

On A2 V tracing paper, draw with ink, the complete ground plan with full dimension to scale of 1:50

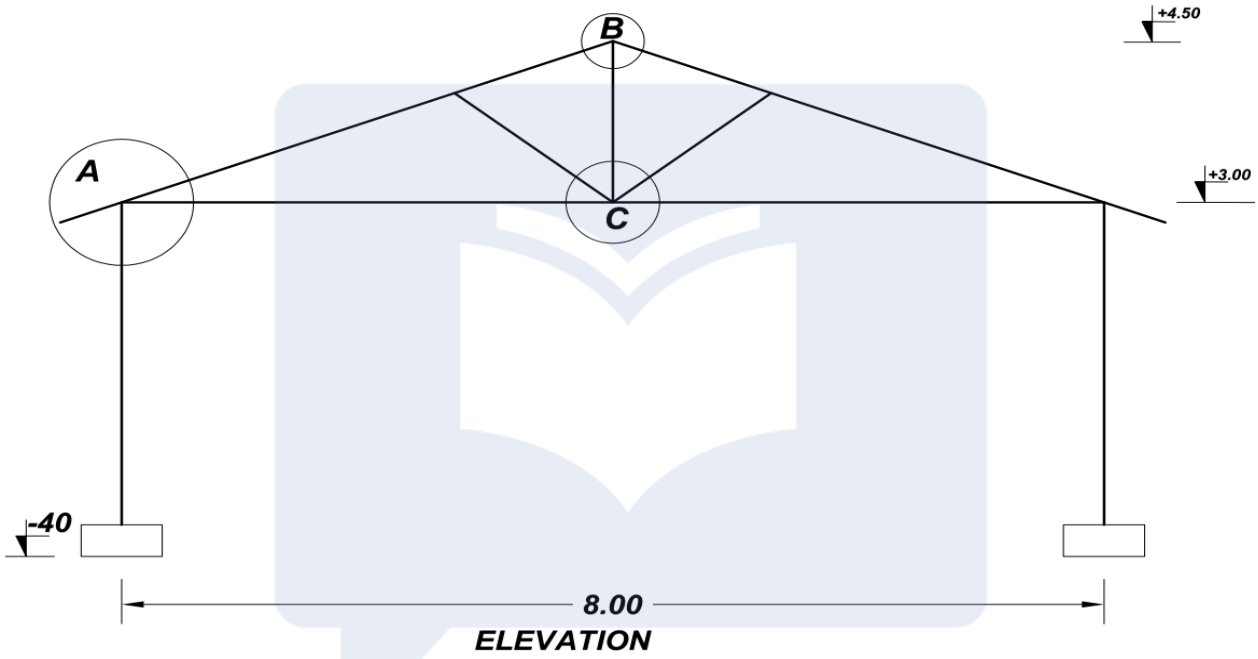
SECTION B: **(50 marks)**

METALLIC CONSTRUCTION

The figure below represent a line diagram of a cross section of a workshop inaugurated with metallic profiles.

DATA

Height of the kingpost 1.50m	Base plate of 500x500x25mm
Rafters of angle bars 80x80x8	End plat of 250x250x15mm
Purlin/strut and brace of UPN 80	Pillars of IPE400 SEE THE TAB ABOVE
Footing of 1.00x40cm	Cleat of 100x100x15mm
Beam of IPE300 see tab above	Bolts of HR 12
Gussets	



WORK REQUIRED:

On an A3V, to scale 1:20 with ink, draw the details of joints A, B, and C

SECTION C: **(50 marks)**

FORMWORK

Partial plan of the basement of the storey building 'SNAC' (see on page 7)

Structural members

With the current height of the storey, they are constituted of transversal non load bearing walls in reinforced concrete e=15cm. a monolithic concrete floor.

The height of the substructure is use as a garage, the –non load bearing walls are replaced with beams which takes support on pillars.

The subsoil is made of a floor of10 cm that is on a bed of sand of 5cm.

Foundations

On the pillars P4, P9, P14 of 30*30, off-center footing S4, S9, S14 of 70*150 and of height 45cm.

They take support on the adjacent wall of 50cm thus the foundation is too deep that it cannot be studied

On P7, P8, P12, P13 of 40*55

Footing S8, S13 of 2.00*2.15 with height =85

Footing S7 of 2.00*2.15 with height =65

Footing S12 of 2.00*2.40 with height= 65

On the wall of P3, footing S3 of 1.4*6.2 with height=40

The footing has a vertical side of 20 cm; the height of glazing is varying. Preview a distance of 10 cm around the pillar on top of the footing to permit the formwork of the pillar to be done. A blinding concrete of 5cm should be put before casting the footings.

Ground beams

To better equilibrate the off centre footing S14,S9,S3 by 3 ground beam L1, L2,L3 of a rectangular sections (30*45) .

The structure above the footing and ground beam are of the same level at+33, 43 and below the ground beam there is a blinding concrete of 5cm.

A lifting space

Internal dimensions of the lifting space shall be1.35*1.35, a -cage- of 90cm height with walls and base of the 15cm thick. Realized at the level 32.58in the ground. Concreting of the foundation, will continue with the linking of cage to the walls of the lifter.

Reinforcement

We are interested on Pillar P3, beam linking P3 and P5, including the footing.

Pillar P3: 4 frames of HA6 + 4HA14, L=2.96m

Ground beam:

Ist and 2ndlayer 4HA 16,L= 5.00m

3rd layer 2HA16,L=5.00m, 15frames HA8, L=1.45m,

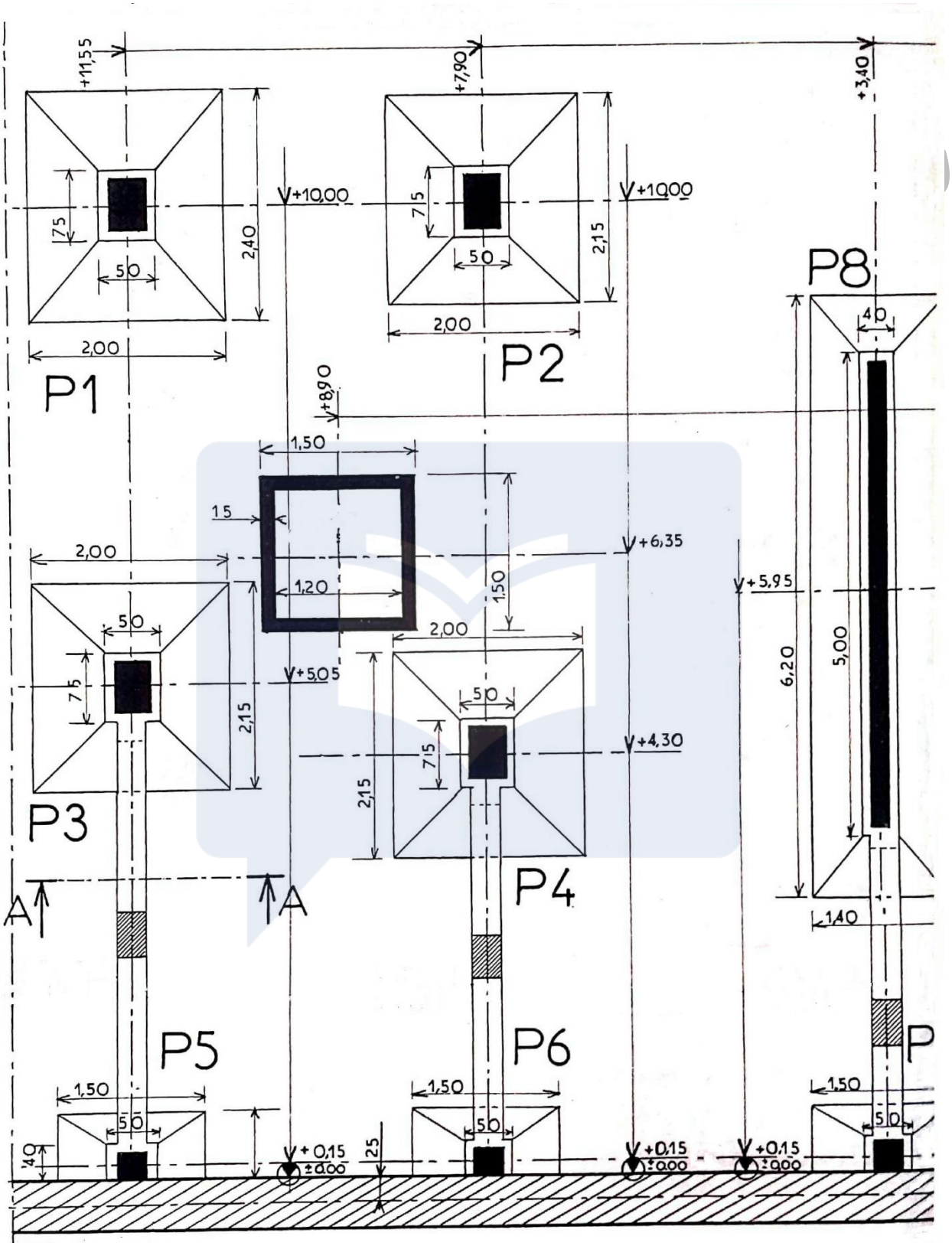
Footing

Long side:13HA20,L= 2.25m
Small side:12HA20,l=2.10m

WORK REQUIRED

On an A3V tracing paper with ink, draw:

- Reinforcement detail of section A-A
- Reinforcement plan of footing of pillar (P3)



FOUNDATION PLAN