GENERAL CERTIFICATE OF EDUCATION BOARD
Technical and Vocational Education Examination

JUNE 2025 KAWLO **INTERMEDIATE LEVEL**

Specialty Name and Acronym	**CIVIL ENGINEERING BUILDING CONSTRUCTION – CE-BC(F4 BA)**
Subject Title	**Construction Processes and Building Practice**
Subject Code No.	**5200**
Paper No.	**2**

Duration: Three Hours

INSTRUCTIONS TO CANDIDATES

Answer FIVE Questions.

Section A: Answer THREE Questions

Section B: Answer TWO Questions

All Questions carry equal marks.

The total marks for this Paper is 100.

Precised answers should be given and where necessary support them with neat sketches.

Answers should be corrected to two decimal places. Take $\pi = 3.14$.

You are allowed to use a Mathematical Set and a non-Programmable Calculator.

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

SECTION A

1. A Contractor won a contract to construct an administrative block of a hospital in a waterlogged site. Due to the high level of water, the site requires very good drainage. As a form five student on internship, you are expected to answer the following questions from your supervisor.
   a) Define the following: **(4 marks)**
      i) Drainage
      ii) Drain
      iii) Sewage
      iv) Sewer
   b) Differentiate between a septic tank and a cess pool **(4 marks)**
   c) List two methods of site drainage **(2 marks)**
   e) Sketch a septic tank and indicate the following parts: **(10 marks)**
      i) Inspection chambers
      ii) Inlet pipe
      iii) Baffle plate
      iv) Outlet
      v) Sludge
      vi) Effluent
      vii) Scum
      viii) Benching
      ix) Cover
      x) Air vent

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2. Building tools are the basic necessities for all construction sites. The construction of a bungalow has been entrusted to you by your supervisor. As a form five student what will be your technical know-how to the following questions.
   a) Identify five tools used for the construction **(5 marks)**
   b) Sketch a trowel and indicate the following parts **(5 marks)**
      i) Handle
      ii) Ferrul
      iii) Shank
      iv) Blade
      v) Edge
   c) Outline four procedures for checking the horizontal tube of a spirit level for accuracy **(4 marks)**
   d) State three qualities of a building tool **(3 marks)**
   e) Name three tools used in setting out **(3 marks)**

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3. A Company has been selected for the realization of a project for the construction of a G +1 building for a residence in your locality. Answer the following questions:
   a) State five factors that influence the design of a storey building **(5 marks)**
   b) List five functions of a storey building **(5 marks)**
   c) Outline four requirements of stairs **(4 marks)**
   d) Enumerate four construction procedures of a concrete staircase **(4 marks)**
   e) Name two means of access to an upper floor **(2 marks)**

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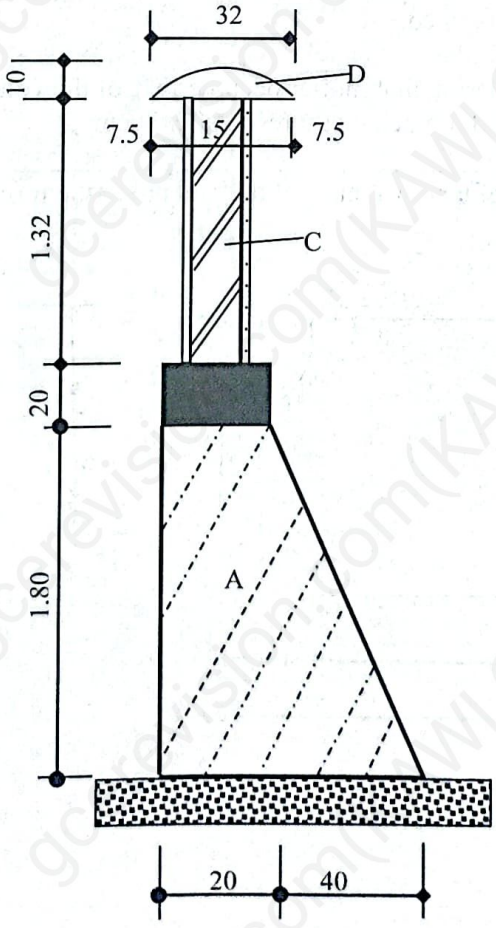
4. A feasibility study has been carried out on a site for the construction of a bungalow. As the would be supervisor for this project, what will be your responses to the following questions:
   a) Define the term bearing capacity of soil **(2 marks)**
   b) State three reasons for removing vegetable soil **(3 marks)**
   c) List four preventive measures to be taken when realizing timbering to trenches **(4 marks)**
   d) Name two types of timbering **(2 marks)**

   a) Choose the type of timbering required for the following types of soils. **(4 marks)**
      i) Firm soil
      ii) Moderate soil
      iii) Loose soil
      iv) Water logged soil
   b) Sketch the cross section of a timbering to trench and indicate the following parts: **(5 marks)**
      i) Poling boards
      ii) Wailing
      iii) Struts
      iv) Ground level
      v) wedges

SECTION B

PROFESSIONAL CALCULATION

5. The fig. 1 below is a section of a drainage masonry unit. Where parts A is of stone work, B of concrete, C of block work and D a semi elliptical coping. Reinforced concrete pillars are introduced in between the walls knowing that the wall starts and ends with a pillar .The pillars of 15cmx15cm spaced at 3m axis to axis. The coping projects 7.5 cm all-round the wall. The wall is 24m long.



Area of elliptical coping $A=\frac{\pi ab}{2}$

Calculate:

a) The volume of stones for part A **(3 marks)**
b) The volume of concrete for part B **(3 marks)**
c) The number of pillars of 15cmx15cm needed for part C **(2 marks)**
d) The number of blocks required for part C considering that $1m^2$ of wall requires 13 blocks **(6 marks)**
e) The volume of plaster needed for both sides of the wall if the thickness is 1cm. **(3 marks)**
f) The volume of concrete in part D given that reinforcement occupies 5% of the volume **(3 marks)**

6. The fig 2 below shows a wall on a stone foundation measuring 400x50x30 cm two circular pillars, a 15cm thick wall and a door opening measuring 2.10x1.00m.

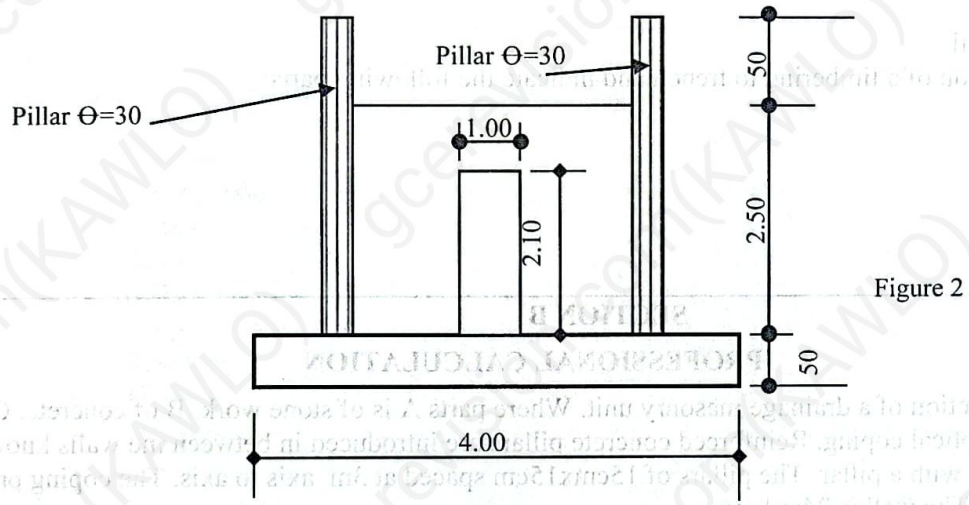


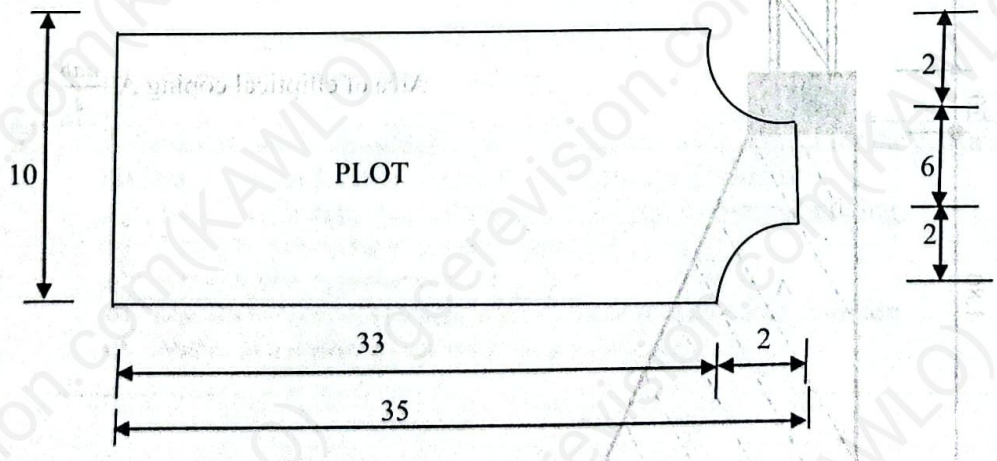
Figure 2

Calculate:

a) The surface area of the wall to be plastered on both sides **(4 marks)**
b) The surface area of the pillars to be painted **(4 marks)**
c) The volume of concrete for the two pillars **(4 marks)**
d) The volume of stones needed considering that mortar occupies 5% of the volume **(4 marks)**
e) The total number of blocks required if a block measures 40x20x20cm **(4 marks)**

7. The drawing figure 3 represents a parcel of land two ends of the plot are in the form of a quadrant.

Take $\pi = 22/7$



All dimensions in metres

Figure 3

Calculate:

a) The circumference of the quadrant **(2 marks)**
b) The perimeter of the plot **(6 marks)**
c) The total area of the plot **(8 marks)**
d) The cost of the plot if $1m^2$ cost 5000frs considering that the area of the plot is $345m^2$ **(4 marks)**