Candidate Name	Centre Number	Candidate Number

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Advanced Level

BUILDING TECHNOLOGY AND DESIGN 6003/1

PAPER 1

SPECIMEN PAPER 2 hours 30 minutes

Additional materials:
Answer paper,
Scientific Calculators, A3 plain paper.

TIME 2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page and on all separate answer paper used.

Section A

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Section B

Answer any **two** questions.

Write your answers on the separate answer paper provided.

At the end of the examination, fasten the separate answer paper securely to the question paper.

Section C

Answer **one** question only.

Write your answer on the separate answer paper provided.

At the end of the examination, fasten the separate answer paper securely to the question paper.

FOR EXAMINER'S USE	
Section A	
Section B	
Section C	
Total	

INFORMATION FOR CANDIDATES

Marks are given in brackets [ ] at the end of each question or part question.

All dimensions are in millimetres unless otherwise stated.

This specimen consists of 9 printed pages and 3 blank pages.

[Turn over

SECTION A [50 marks]

Answer **all** questions in the spaces provided

1 **(a)** Briefly describe the following site surveying procedures:

(i) General view,

_____

_____

_____

_____ [2]

(ii) Observation and measurement,

_____

_____

_____

_____ [2]

(iii) Presentation of data.

_____

_____

_____

_____ [2]

(b) Explain aerial surveying.

_____

_____ [2]

(c) Sketch an ordinance survey bench mark symbol. [2]

2 **(a)** Evaluate **three** reasons why small building enterprises are of great importance to the economy of Zimbabwe.

_____

_____

_____

_____ [3]

(b) Prescribe **four** nonfinancial incentives that building contractors can use to motivate their employees.

_____

_____

_____

_____

_____

_____ [4]

(c) Identify **three** conditions which make a contract valid.

_____

_____

_____

_____ [3]

3 **(a)** Describe any **four** factors that influence the shape of a building plan.

_____

_____

_____

_____

_____ [4]

(b) Explain any **five** problems that can lead to failure of a building structure.

_____

_____

_____

_____

_____

_____ [5]

(c) State any **one** structural requirement of a stair.

_____

_____ [1]

4 **(a)** **(i)** Sketch a fire extinguisher and label any **four** major parts. [4]

(ii) List any **two** places where fire extinguishers can be placed for easy access in a building.

_____

_____

_____ [2]

(iii) State the colour bands for the following fire categories:

Class A,

_____

_____ [1]

Class B,

_____

_____ [1]

Class C,

_____

_____ [1]

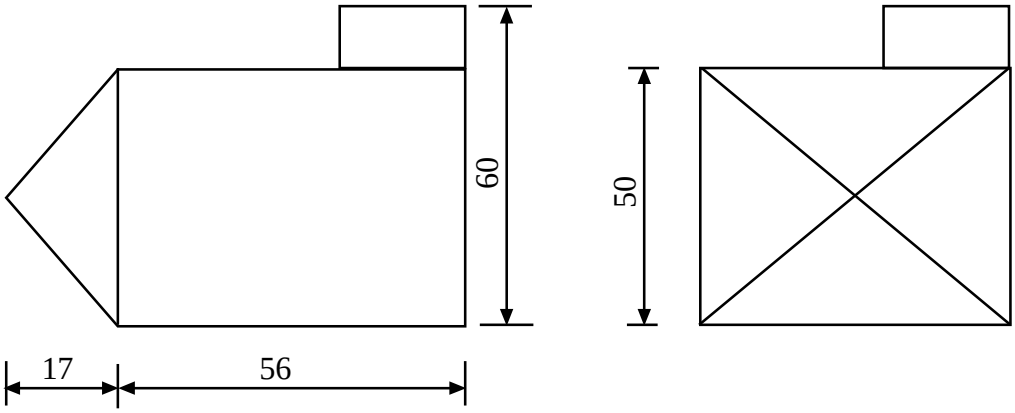
Class D.

_____

_____ [1]

5 Using the front elevation and end elevation of a block in **Figure 5** and a scale of **1:10**.

(a) Draw the plan, [3]



FRONT ELEVATION END ELEVATION

Fig. 5

(b) Draw an isometric drawing of the block. [7]

SECTION B

Answer any **two** questions on the separate paper provided

6 Identify and analyse any **five** specific roles of a Project Manager. [15]

7 **(a)** Name any **two** raw materials used in the production of biogas. [2]

(b) Explain step by step the process of producing biogas using the fixed dome plant. [10]

(c) Outline **three** benefits of biogas plants. [3]

8 **(a)** Explain the meaning of the following architectural terms:

(i) Architecture, [1]

(ii) Façade, [1]

(iii) Arcade, [1]

(iv) Dormer. [1]

(b) Distinguish among a home, a building and a house. [6]

(c) Explain how the name 'Zimbabwe' has strong architectural background. [5]

9 **(a)** Explain how the California Bearing (CBR) test is carried out. [5]

(b) Outline **six** properties of concrete in its fresh state. [6]

(c) Justify why timber is used in the construction of roof trusses. [4]

10 **Figure 10** below shows a beam under load supported at **A** and **B.**

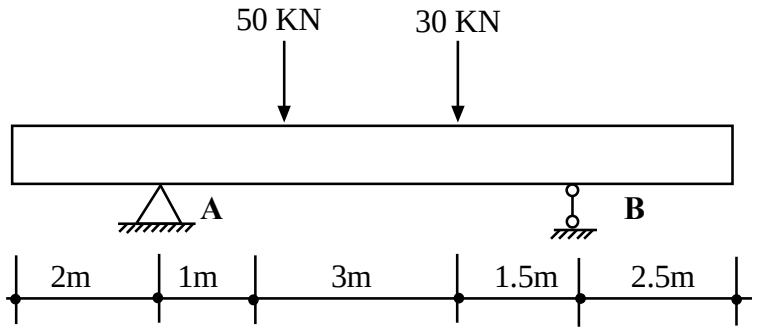


Fig. 10

(a) Calculate:

(i) $\circlearrowleft^{+}$ MB, [2]

(ii) $\circlearrowleft^{+}$ MB. [2]

(b) Sketch the sheer force diagram for the beam. [11]

SECTION C

[20 marks]

Compulsory Section.

11 **Figure 11** shows a floor plan of a dwelling house which is to be constructed on a stand measuring 300m^2

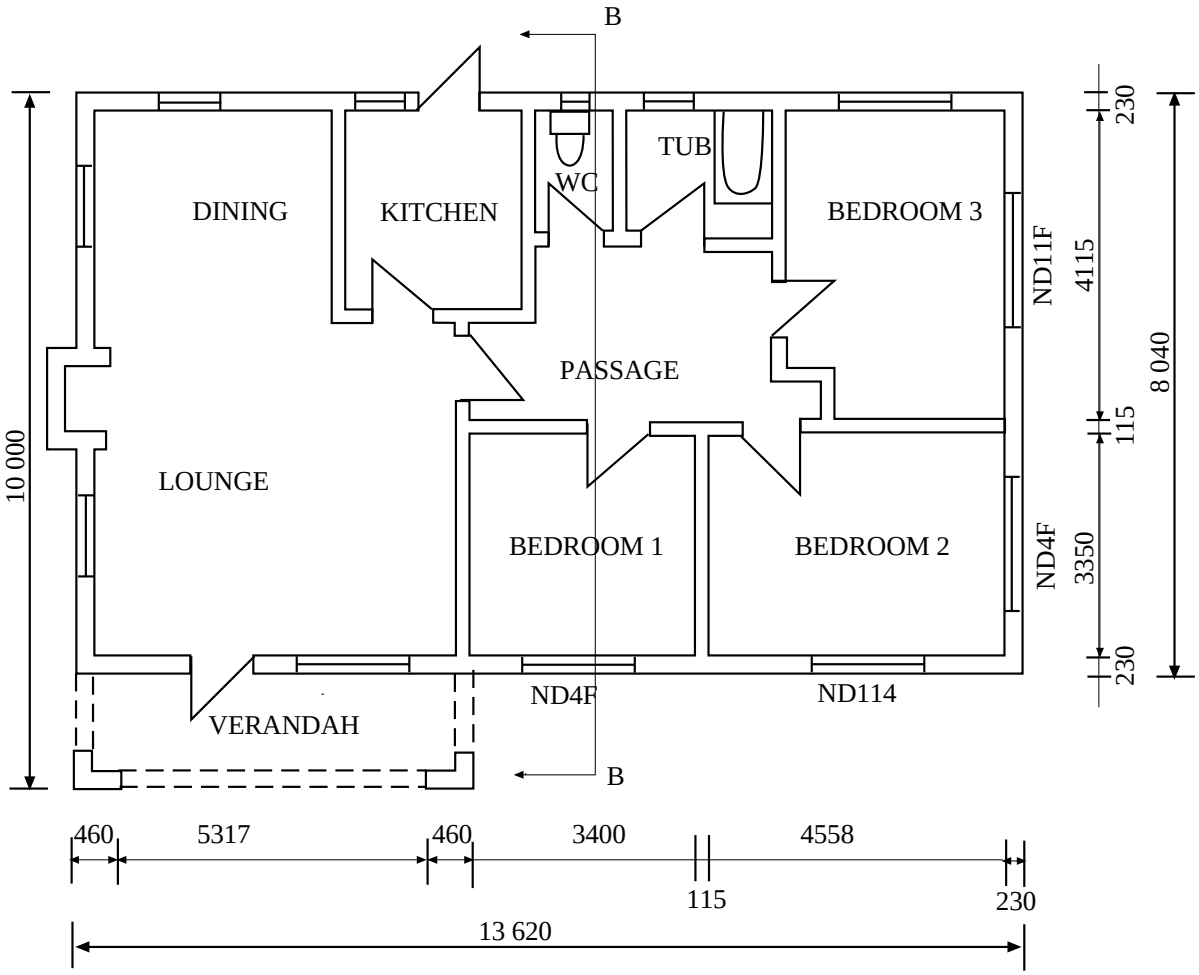


Figure 11

Design:

(a) An appropriate sectional view with a trussed roof and label key details. [15]

(b) A detailed site plan using an appropriate scale. [5]

NB: Use appropriate colour coding.

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