

Candidate Name

Centre Number

Candidate Number



**ZIMBABWE SCHOOL EXAMINATIONS COUNCIL**  
General Certificate of Education Advanced Level

**BUILDING TECHNOLOGY AND DESIGN**  
**PAPER 1**

**6003/1**

**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.

**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.

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

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

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[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,

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[2]

**(ii)** Observation and measurement,

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[2]

**(iii)** Presentation of data.

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[2]

**(b)** Explain aerial surveying.

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[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.

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[3]

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

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[4]

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

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[3]

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

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[4]

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

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[5]

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

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[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.

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[2]

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

Class A,

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[1]

Class B,

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[1]

Class C,

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[1]

Class D.

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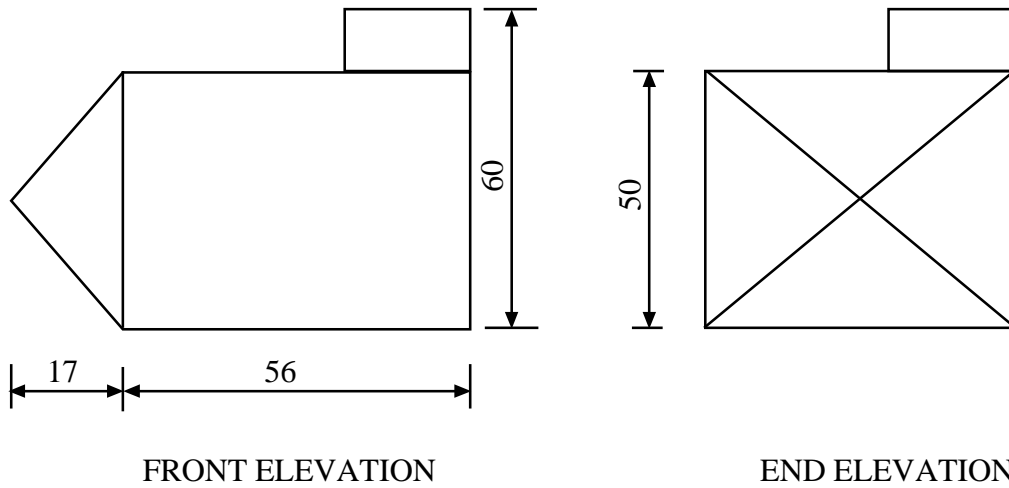
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[1]

- 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]



**Fig. 5**

(b) Draw an isometric drawing of the block.

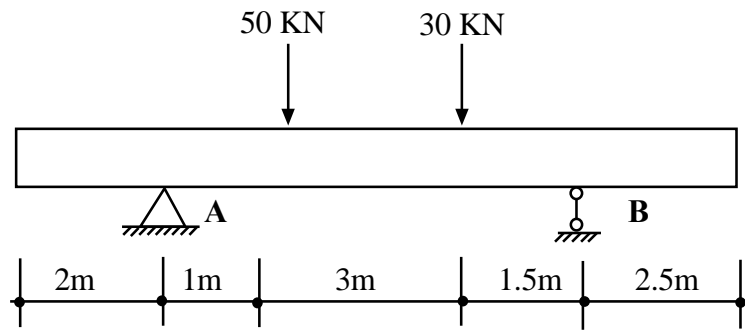
[7]

**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)  $\odot$  MB, [2]

(ii)  $\odot$  MB. [2]

(b) Sketch the shear 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<sup>2</sup>

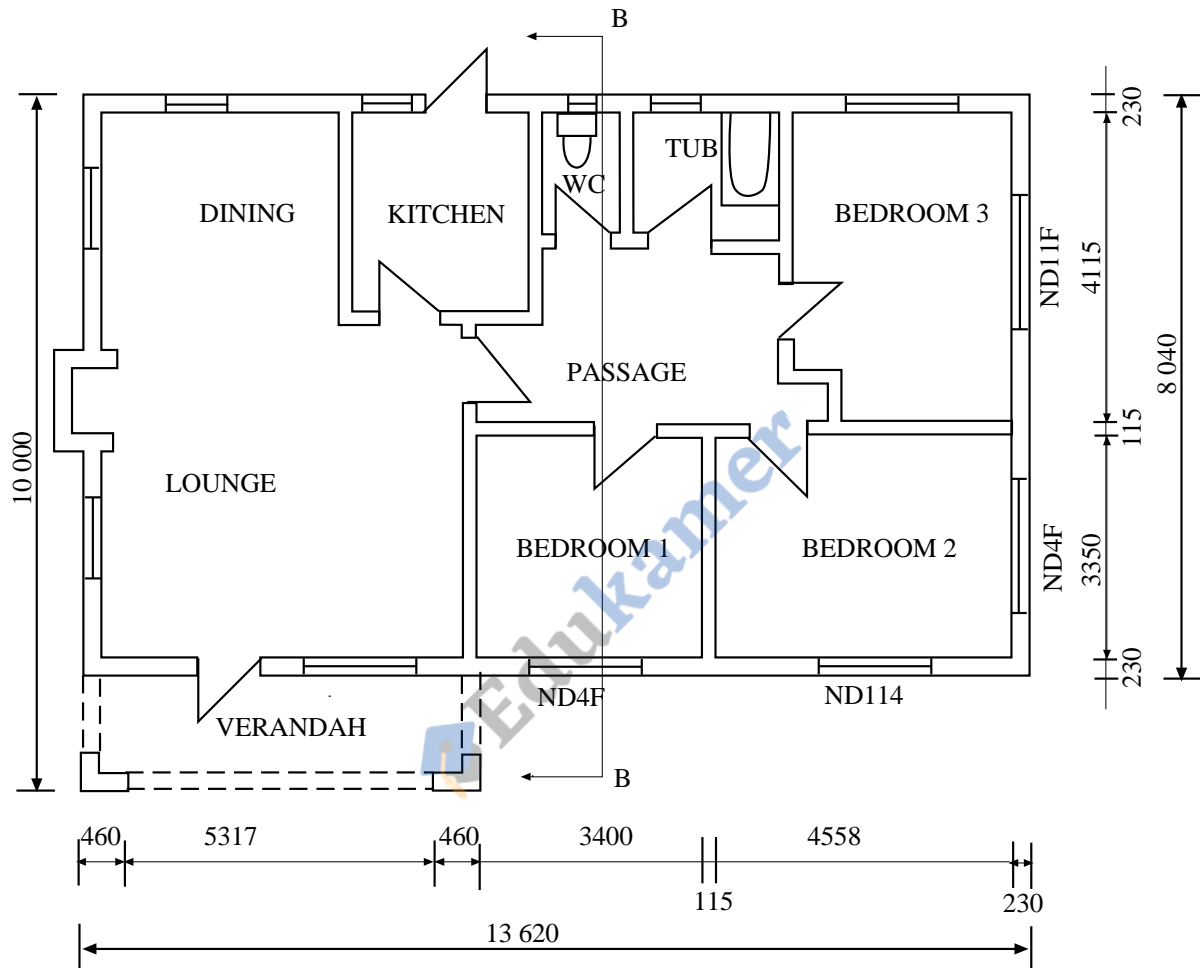


Figure 11

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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