

446/1

BUILDING CONSTRUCTION
(Theory)

Paper 1



Mar. 2022 – 2½ hours

Name Index Number

Candidate's Signature Date

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of the examination in the spaces provided above.
- (c) Candidates should have the following for this examination:
 - Drawing instruments;
 - Drawing paper size **A3**;
 - Scientific calculator.
- (d) This paper has **two** sections; **A** and **B**.
- (e) Answer **all** the questions in section **A** in the spaces provided.
- (f) From section **B**, answer question **11** on the **A3** paper provided and any other **three** questions in the spaces provided.
- (g) **All dimensions are in millimetres unless otherwise stated.**
- (h) **This paper consists of 12 printed pages.**
- (i) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- (j) **Candidates should answer the questions in English.**

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 10	40	
B	11	15	
		15	
		15	
		15	
Total Score			

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SECTION A (40 marks)

Answer all the questions in this section in the spaces provided.

1. (a) State **two** reasons for removing vegetable soil from a construction site. (2 marks)

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- (b) Explain the meaning of 'Building Construction'. (2 marks)

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2. (a) Sketch a strap hinge. (2 mark)

- (b) Explain **two** uses of plaster dots formed on a wall when plastering. (2 marks)

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3. Apart from huts or caves, explain how **one** other form of shelter was constructed and used in the early days. (3 marks)

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4. (a) State the appropriate protective wear for each of the following parts of the body: (2 marks)

(i) Head

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(ii) Hands

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(iii) Feet

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(iv) Eyes

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(b) Give **two** reasons for using d.p.c. appropriately. (2 marks)

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5. Sketch and label a pictorial cross-section of PVC floor finish to show the details from the hard core to the finish. (4 marks)

6. State **two** advantages of the 3:4:5 method of setting out. (2 marks)

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7. Outline **two** desirable qualities of each of the following workshop attire: (4 marks)

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(i) Goggles

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(ii) Workshop boots

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8. (a) Figure 1 shows a door frame.

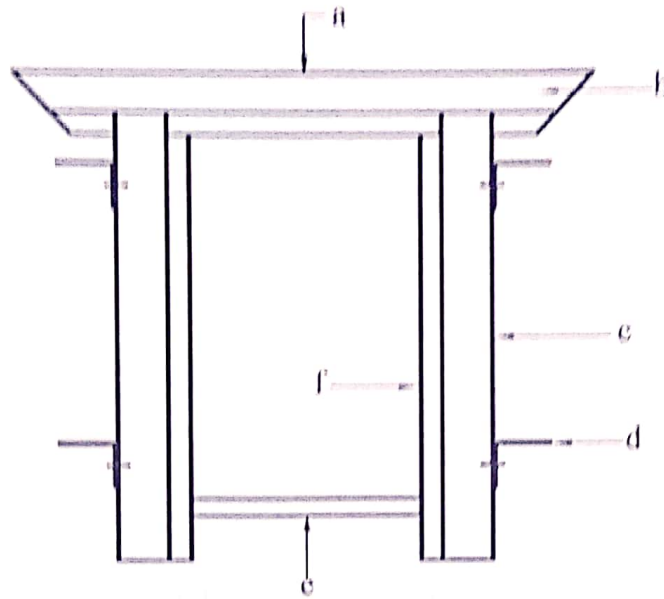


Figure 1

Name the parts labelled a, b, c, d, e and f.

(3 marks)

- a
- b
- c
- d
- e
- f

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- (b) Sketch and label a strip foundation footing. (2 marks)



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9. (a) State **three** advantages of using PVC pipes for drainage works. (3 marks)

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- (b) Use sketches to show the difference between a gable roof and a lean-to roof. (2 marks)

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10. Draw a pipe of diameter 30 mm 50 mm long **Full Size** in isometric projection and use the ordinate method to construct the isometric circles. (5 marks)

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SECTION B (60 marks)

Answer question 11 on the A3 paper and any other three questions from this section in the spaces provided. Candidates are advised not to spend more than 25 minutes on question 11.

11. Figure 2 shows a shaped block drawn in isometric projection.

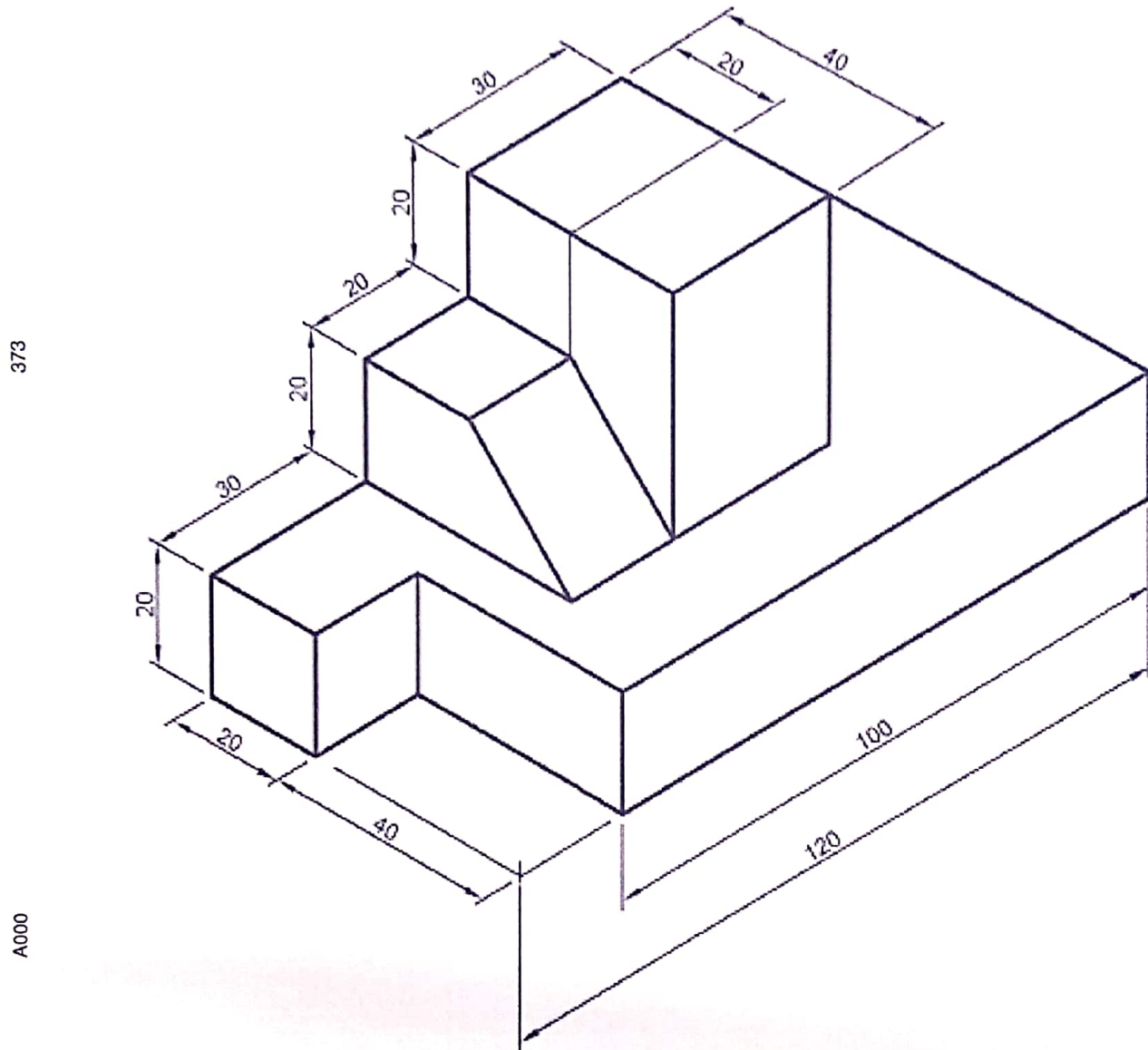


Figure 2

- (a) Draw the **three** orthographic views of the block **Full Size** in first angle projection. (11 marks)
- (b) Include **four** major dimensions. (4 marks)



12. (a) With the aid of a labelled sketch, explain the method of levelling a trench bottom using boning rods. (8 marks)

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(b) Outline the procedure of casting an in-situ lintel. (7 marks)

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13. (a) Explain **three** differences between a turning piece and a centre piece. (6 marks)

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(b) Describe each of the following members of a scaffold: (6 marks)

(i) Standard

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(ii) Ledger

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(iii) Putlogs

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(c) Explain **two** functions of a soakaway pit. (3 marks)

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14. (a) List **four** key personnel involved in the implementation of a building construction project. (4 marks)

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(b) State the standard concrete mixes recommended for each of the following areas: (2 marks)

(i) Concrete columns

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(ii) Foundation concrete

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(iii) Upper reinforced floor slab

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(iv) Concrete window sill

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(c) Outline the procedure of preparing the surface of an old plastered and painted wall to receive a new coat of paint. The wall has cracks and the paint is peeling off. (9 marks)

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15. (a) (i) Explain the term pitch as used in roof work.

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(ii) State **two** methods of determining a roof pitch.

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(4 marks)

(b) Sketch and label a vertical cross section of a concrete inspection chamber.

(8 marks)

(c) State **three** factors that govern the method to adopt when excavating a trench. (3 marks)

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Kenya Certificate of Secondary Education, 2021

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