



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL FOUNDATION CERTIFICATE

IN

BRICK AND BLOCKLAYING

SUBJECT: Brick and Blocklaying Theory

PAPER NO: 106/15/S01

DURATION: 3 hours

NOVEMBER/DECEMBER 2022 EXAMINATION

REQUIREMENTS

1. Pen
2. Pencil
3. Ruler

INSTRUCTIONS TO CANDIDATE

1. Answer all questions in Section A – 40 marks.
2. Answer any four (4) questions in Section B – 60 marks.

This paper consists of 4 printed pages.

SECTION A

QUESTION 1

- a) List any four (4) functions of ground floors. (4 marks)
- b) Define the term paving. (2 marks)]
- c) What is a datum peg? (2 marks)
- d) Give any three (3) safety precautions you would observe when excavating trenches. (3 marks)

QUESTION 2

- a) What are the three (3) classes of clay bricks? (3 marks)
- b) State uses of the following tools:
 - i) Straight edge (2 marks)
 - ii) Iron float (2 marks)
 - iii) Tingle plate (2 marks)
 - iv) Corner blocks (2 marks_)

QUESTION 3

- a) Give any two (2) advantages of painting. (2 marks)
- b) Using a diagram, show an elevation of a broken bond 5 bricks long and 3 courses high. (4 marks)
- c) On which part of a concrete lintel are tensional forces found? (1 mark)
- d) List any 2 points to observe when building in sills. (2 marks)

QUESTION 4

- a) What is a partition wall? (2 marks)
- b) Why are clay bricks watered before they are laid? (2 marks)
- c) List any five (5) important tools that are required when setting out a squared building. (5 marks)

SECTION B

Answer any four (4) questions.

QUESTION 5

- a) Write short notes on how the following materials are kept on site:
- i) Bricks (3 marks)
 - ii) Bags of cement (3 marks)
 - iii) Sand (3 marks)
- b) i) Provide any three (3) reasons why clearance of top soil is important from the ground where a structure is to be constructed. (3 marks)
- ii) Explain briefly how cavity walls are kept clean during construction. (3 marks)

QUESTION 6

- a) i) Give any two (2) causes of segregation in concrete. (2 marks)
- ii) What is the primary function of a window opening? (1 mark)
- iii) State the purpose of a throat on a window sill. (1 mark)
- iv) Provide any three (3) reasons why ground water drainage is important. (3 marks)
- b) i) What is the use of a wire brush? (1 mark)
- ii) List any three (3) properties of concrete in its fresh state. (3 marks)
- iii) Give any four (4) types of cement used in the construction industry. (4 marks)

QUESTION 7

- a) Illustrate by means of a well labelled diagram a 3-pin plug without the cover. (5 marks)
- b) Provide four (4) factors which trench timbering depends on. (4 marks)
- c) Draw the plan of a corner profile and show all the details. (4 marks)
- d) Define the term 'setting out'. (2 marks)

QUESTION 8

- a) Calculate the volume of water required to half fill a tank measuring $2m \times 3m \times 0.5m$. (6 marks)
- b) How many bricks would be required to construct a wall whose length is $8.1m$ and height $3.2m$ if $1m^2 = 58$ bricks. (6 marks)
- c) Calculate the cost of constructing the wall above (b) if the bricklayer charges $\$2,25/m^2$. (3 marks)

QUESTION 9

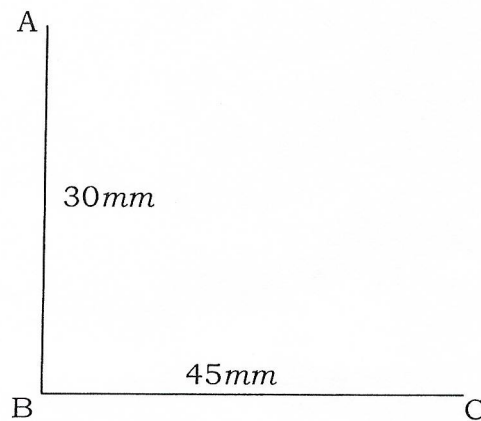


Fig. 1.

- a)
 - i) Draw a circle whose circumference touches points A, B and C in Fig. 1. (6 marks)
 - ii) List any five (5) types of lines used in drawing. (5 marks)
- b) State uses of the following:
 - i) Protractor
 - ii) Compass (2 marks)
- c) Define the term 'scale'. (2 marks)

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