



ZIMBABWE

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

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

BUILDING TECHNOLOGY

MODULE: Bonding Practice

PAPER NO: 308/22/M04

DURATION: 3 hours

MAY/JUNE 2024 EXAMINATION

REQUIREMENTS

1. A4 drawing paper
2. Drawing instruments

INSTRUCTIONS TO CANDIDATE

1. Answer all questions in Section A – 40 marks.
2. Answer any three (3) questions in Section B – 60 marks.
3. All drawings must be on drawing paper.

SECTION A

QUESTION 1

- a) Outline four (4) main purposes of bonding a wall. (4 marks)
- b) Give two (2) reasons for dry bonding a wall. (2 marks)
- c) Explain:
 - i) $\frac{1}{2}$ lap (2 marks)
 - ii) $\frac{1}{4}$ lap (2 marks)

QUESTION 2

With the aid of diagrams shows the following types of bonds:

- a) Stretcher bond (2 marks)
- b) English bond (2 marks)
- c) English garden wall bond (2 marks)
- d) Flemish bond (2 marks)

QUESTION 3

Explain the following terms used in heat transmission:

- a) Conduction (2 marks)
- b) Convection (2 marks)
- c) Radiation (2 marks)

QUESTION 4

- a) Explain the difference between pointing and jointing. (2 marks)
- b) Use sketches to illustrate the following types of joints:
 - i) Flush joint (2 marks)
 - ii) Struck joint (2 marks)
 - iii) Recessed joint (2 marks)
 - iv) Weather struck joint (2 marks)

QUESTION 5

- SECTION B** [60 marks]

Produce two (2) alternate plan courses of the wall shown in Fig. 1, in English bond.
Take brick size to be 20mm × 10mm × 7mm.

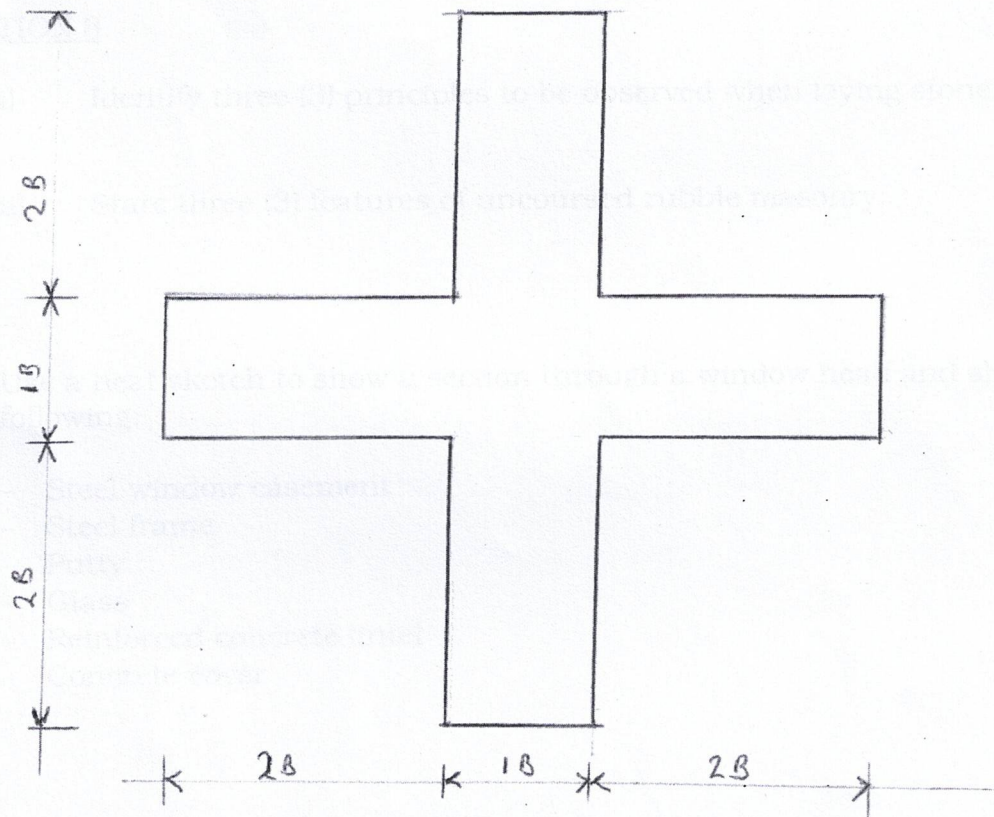


Fig. 1 – Plan of Course Outline

(20 marks)

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QUESTION 7

- a) Explain any three (3) paint defects and their causes. (6 marks)
- b) Discuss two (2) properties of sound insulating materials. (2 marks)
- c) Define the following terms as they are used in stair construction:
- i) Tread (2 marks)
 - ii) Going (2 marks)
 - iii) Nosing (2 marks)
- d) Explain why water bond is recommended for water tanks. Use diagram to illustrate your answer. (3 marks)
- e) List down four (4) types of fireplace recesses. (4 marks)

QUESTION 8

- a) i) Identify three (3) principles to be observed when laying stone work. (3 marks)
- ii) State three (3) features of uncoursed rubble masonry. (3 marks)
- b) Use a neat sketch to show a section through a window head and show the following:
- Steel window casement
 - Steel frame
 - Putty
 - Glass
 - Reinforced concrete lintel
 - Concrete cover
- (14 marks)

QUESTION 9

- a) List six (6) buildings which must be insulated against noise. (6 marks)
- b) Explain three causes of external noise. (3 marks)
- c) The sketch in Fig. 2 shows the second plan course of a wall in English bond with an attached pier. Complete bonding of course 2.

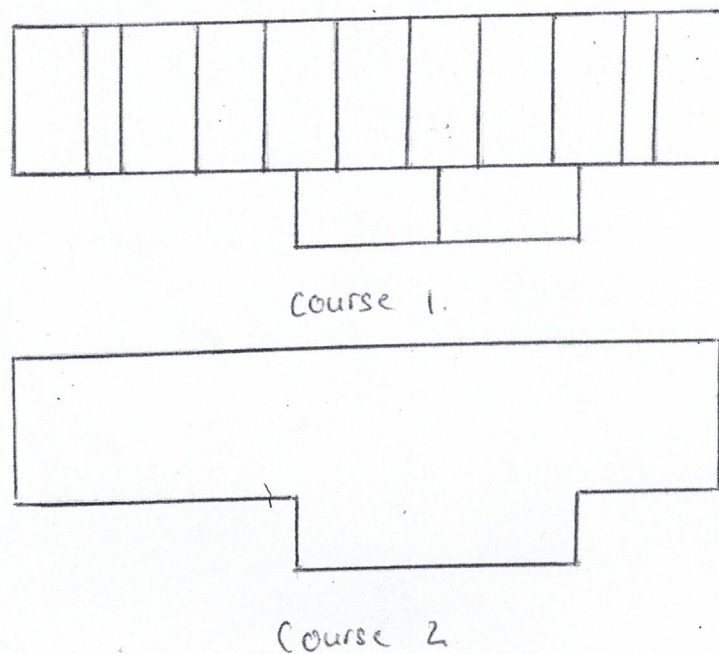


Fig. 2

- d) State any four (4) disadvantage of cladding. (4 marks)
- e) Identify any two (2) bonds used for decorative purposes in construction. (2 marks)

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