# THE UNITED REPUBLIC OF TANZANIA
# NATIONAL EXAMINATIONS COUNCIL
# CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

**071** **BUILDING CONSTRUCTION**
(For Both School and Private Candidates)

*TIME: 3 Hours* *Friday 24th October 2008 a.m.*

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**Instructions**

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **two (2)** questions from section C.
3. Electronic calculators are **not** allowed in the examination room.
4. Cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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## SECTION A (20 marks)

Answer **all** questions in this section.

1. For each of the items (i) – (x), choose the correct answer among the given alternatives and write its letter beside the item number.

(i) The two construction methods applied in the building industry are
- A modern and industrialized
- B traditional and conventional
- C modern and technology
- D conventional and modern
- E mud and conventional.

(ii) Which of the following mix represents plain concrete?
- A 1:2:4
- B 1:3:6
- C 1:1½ :9
- D 1:4:9
- E 1½ : 3½ :6

(iii) Levelling in site preparation means
- A reduced level
- B cut level
- C fill up level
- D beat up level
- E sport level.

(iv) Settlement is defined as downward
- A transfer of building loads
- B carried loads of the building
- C movement of the ground
- D passage of moisture
- E action of building loads.

(v) The tube which bears on the ground on an adjacent structure is called
- A bridles
- B sole plates
- C reveal ties
- D raker
- E standard

(vi) One of the following is used to divide space within the building
- A Fender wall
- B Retaining wall
- C Internal wall
- D Parapet wall
- E External wall

(vii) Floor construction depends on
A student gender-hood
B purpose and materials
C prevailing wind
D uses only
E soil bearing capacity.

(viii) In roofing, a verge is defined as
A a horizontal timber providing intermediate supports to spars
B a structure formed by members framed together for supporting purling
C small piece of wood to which tiles are secured
D an edge of a roof which runs from eave to ridge at a gable
E a line produced when three or more roof surfaces intersect to form an angle.

(ix) Door set consists of
A shutter plus frame and hinges
B door plus shutter and locks
C door plus hinges and screws
D shutter plus hinges and wire nails
E door plus frame and screws.

(x) The total area of the ventilation opening must exceed _____ of the floor area of the room
A $1/10^{th}$
B $1/20^{th}$
C $1/12^{th}$
D $1/25^{th}$
E $1/24^{th}$

2. Match the response in **List B** with the items, in **List A** by writing a letter of the correct response beside the item number.

| LIST A | | LIST B | |
|---|---|---|---|
| (i) | The roof which is sloping in four directions of the building | A | Support roof covering material |
| (ii) | A sloping roof having glazing fixed on the steep sloping sides of it | B | To dispose rain water |
| (iii) | Is the lower edges of the surface of a sloping roof | C | Corrugated asbestos sheets |
| (iv) | One of the functions of parlins | D | To support mono pitched roof |
| (v) | Roof finishing materials out of metal | E | Barge |
| (vi) | The basic structural shape in pitched roof construction | F | Triangle |
| (vii) | Heavy finishing which needs more timber to be put in place | G | Mansard truss roof |
| (viii) | The main purpose of a flat roof having gentle slope | H | Plain tiles |
| (ix) | The members supporting the battens or boarding under the covering of a sloping roof | I | Hipped roof |
| (x) | A wooden board fixed to the ends of the common rafters projecting beyond the gabled end of a sloping roof | J | Common rafter |
| | | K | Corrugated galvanized iron sheets |
| | | L | To support wall plate |
| | | M | Breaking the blowing winds |
| | | N | Gable |
| | | O | Jack rafter |
| | | P | Saw tooth or north light roof |
| | | Q | Barge board |
| | | R | Rectangular |
| | | S | Eaves |
| | | T | Interlock |

## SECTION B (40 marks)

Answer **all** questions in this section.

3. (a) Define the term sewage.

(b) What is surface water?

4. List down the **four (4)** types of ball valves.

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5. Label the parts of the open fire place indicated in Figure 1.

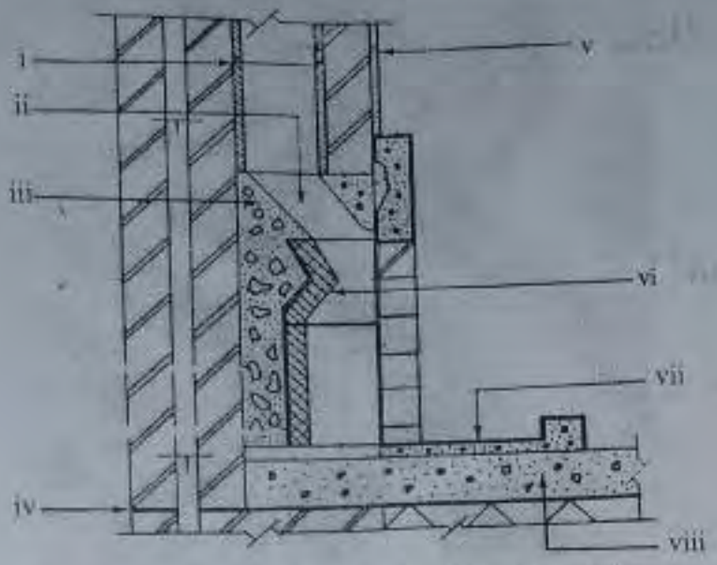



Figure 1: CROSS SECTION OF OPEN FIREPLACE

6. Label the indicated parts of a stair in Figure 2.

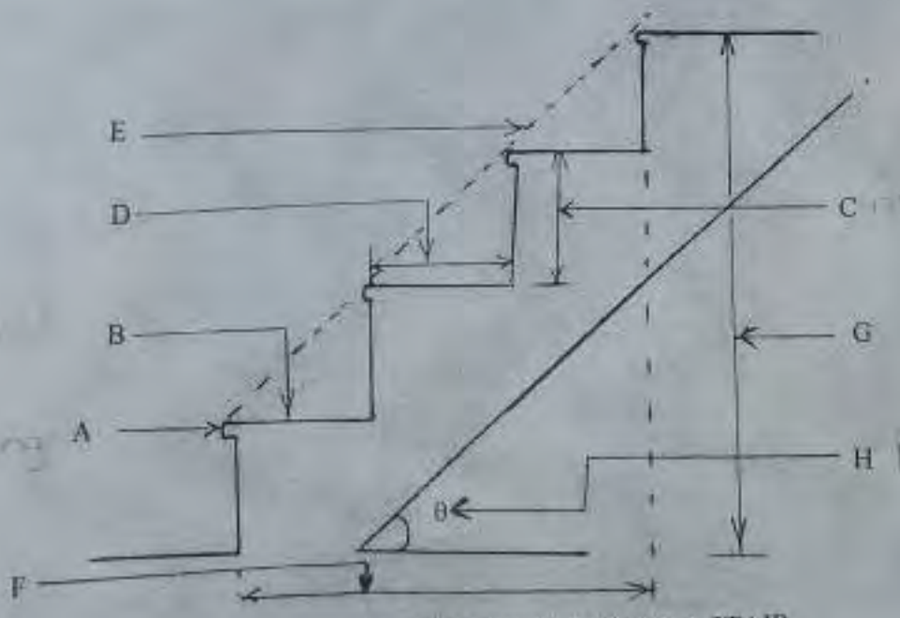



Figure 2: SIDE ELEVATION OF A STAIR

7. (a) What is a screw?
(b) How are screws classified?
(c) Mention **two (2)** types of screws.

8 Mention **four (4)** factors to be considered during roof design

9. (a) List down the **three (3)** headings to be considered during the construction of solid ground floor.
(b) Give **two (2)** purposes of hardcore during floor construction.

10. (a) Mention **two (2)** loads transmitted by columns in building work.
(b) Distinguish dead loads from live loads.

11. (a) What factors lead to the selection of methods in arches construction?
(b) Outline **four (4)** processes of constructing an arch.

12. (a) Give **two (2)** reasons for bonding the walls of a building.
(b) What is a parapet wall in a building?

## SECTION C (40 marks)

Answer **two (2)** questions from this section.

13. (a) Make a neat and a well labelled rear elevation sketch of a ledged and battened door.
(b) Define (i) half turn stair
(ii) headroom of a stair
(iii) winder of a stair.
(c) List down **four (4)** materials for making windows.
(d) State the functions of the following items.
(i) Door bolts
(ii) Tee hinges

14. (a) Explain (i) shallow foundation
(ii) deep foundation.
(b) What is the advantage of having access to the site?
(c) Why are the ends of reinforcements crunked into hooks?
(d) Why is it important for the scaffolds to be stable and strong?

15. (a) Mention **six (6)** principles of a good drainage.
(b) (i) List down **four (4)** materials for constructing beams.
(ii) Mention **four (4)** shapes of reinforced concrete columns.
(c) Identify **four (4)** materials required to build a timber floor.
(d) (i) What is the function of roofing felt?
(ii) Name **four (4)** materials used as roofing felt.