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 *Monday morning 29/10/2007*

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **two (2)** questions in section C.
3. Section A carries 20 marks while section B and C carry 40 marks each.
4. Cellular phones are not allowed in the examination room.
5. Write your Examination Number on every page of your answer booklet(s).

SECTION A (20 marks)

Answer **all** questions in this section

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

(i) The main poles used in a putlog scaffold are
- A flying raker, brace, putlog, standard
- B brace, putlog, walling board, standard
- C standard, putlog, braces, ledger
- D putlog, poling board, false work, standard
- E transom, poling board, brace, putlog.

(ii) The client's representative on construction sites who records the daily activities at the site is known as
- A Quantity surveyor
- B Clerk of works
- C Site foreman
- D Site agent
- E Sub-contractor.

(iii) The timber framework which is inserted into an opening of wall where the door shutter is hung is
- A stile
- B jamb
- C door lining
- D cill
- E transom.

(iv) The type of bond that consists of alternate bricks laid as headers and stretchers in each course is called
- A flemish bond
- B english bond
- C stretcher bond
- D english garden wall bond
- E flemish garden wall bond.

(v) The type of single pitched roof consisting of a pair of rafters sloping down in two directions from the ridge and their feet supported on wall plate is known as
- A closed couple roof
- B double roof
- C collar roof
- D couple roof
- E mono-pitch roof.

(vi) The brickwork structure that carries the flue above the roof is called
A chimney breast
B throat
C flue
D chimney
E hearth.

(vii) Timber binders or steel beams are commonly used in
A double floors in timber
B upper floors
C solid ground floor
D raised timber ground floors
E any floor.

(viii) Concrete sets to rock-like mass due to the chemical reaction which takes place between
A fine aggregates and water
B coarse aggregates and cement
C water and cement
D cement and fine aggregates
E water and coarse aggregates.

(ix) The first task to be accomplished when setting out foundation on a building site is to
A obtain a datum level
B establish the building line
C set profile boards
D set right angles
E measure the size of the building.

(x) In order to prevent loss of water seal by induced siphonage
A provide trap to the fittings
B install a resealing trap to the fittings
C fit an anti-siphon pipe 76mm from the crown of the trap
D clean the traps to remove any material logged in the trap which could cause the loss of seal
E both B and C are correct.

2. Match the items in list A with the responses in list B by writing the letter of the correct response beside the item number

List A
(i) A joint used between the rafters and wall plates in roof construction
(ii) The vertical timber member used to support horizontal boards in timbering to trenches
(iii) The sanitary fittings installed in buildings to collect the waste/ablutionary water and discharge to drain.

(iv) A structure constructed of voussoirs cut to wedge shape.
(v) One of disadvantages of using lime mortar
(vi) In order to prevent smoke through the chimney as well as seal possible cracks in the chimney brick/block joints.
(vii) Particle size and shape of aggregates
(viii) The main role of the client
(ix) The difference between a mortise lock and a rim lock
(x) Nosing.

List B

A Sewer
B It has low setting time thus allowing enough time to work on it
C Tongue and grooved joint
D The former is fixed on the internal surface of the wall while the latter is fitted in a hole cut into the edge of the door
E Birds mouth
F Waste fittings
G Segregation placing and compacting
H The part of tread that project beyond the riser
I Walling board
J The internal face of the chimney should be lined with suitable flue liners
K To estimate the cost of the project
L Rough arches
M Soil fittings
N The former is fitted in a hole cut into the edge of the door while the latter is fixed on the internal surface of the door
O Poling board
P Gauged arch
Q The internal face of he chimney should be pointed
R To finance the project
S The part of stair that supports the balustrade
T Elements affecting the workability of concrete.

SECTION B

Answer **all** questions in this section.

3. (a) Define foundation.

(b) State two factors upon which the choice of a type of foundation depends.

4. (a) What are cavity walls?

(b) List two advantages of cavity walls in construction.

5. (a) Why is the top soil removed before digging the foundations?

(b) When does it become necessary to perform dewatering when excavating foundation trenches?

6. List four principal root covering materials to pitched roofs

7. (a) What is portable water?

(b) Who carries out the taping of main pipes and laying the communication pipe when installing service pipes to buildings?

8. Explain briefly the difference between a common stairway and a private stairway.

9. What is meant by the following terms?

(a) Fine aggregates

(b) Coarse aggregates

(c) All-in aggregates

(d) Clearing the site

10. Define the following terms:

(a) Angle of repose

(b) Glazing

11. (a) What is meant by in-situ floor finishes?

(b) Give two examples of the in-situ floor finishes.

12. Sketch a framed ledged braced and battened door and label any 2 parts.

SECTION C

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

13. (a) Differentiate between load bearing walls and non load bearing walls and for each give two examples.

(b) What is the difference between an arch and a lintel?

(c) Describe the procedure of laying terrazzo floor finish.

(d) Sketch weather struck joints as used in pointing

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14. (a) Define the following terms:
(i) Architrave
(ii) Skirting
(iii) Building line
(iv) Strutting
(v) Stair

(b) Where are intercepting traps used?

(c) Design and draw a fully labelled diagram of a septic tank for a family of five (5) people.

15. (a) Describe briefly the following types of stairs:
(i) Straight flight stairs
(ii) Dog legged stairs
(iii) Newel post stairs

(b) Show by sketches the difference between strip foundation and deep strip foundation.

(c) With the aid of a sketch, explain where the following failures are likely to occur when a simply supported beam is loaded from the top.
(i) Maximum bending failure
(ii) Maximum shear failure