

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

072

ARCHITECTURAL DRAUGHTING
(For Both School and Private Candidates)

Time: 2 hours

Friday, 03rd November 2017 p.m.

Instructions

1. This paper consists of sections A, B and C with a total of **fifteen (15)** questions.
2. Answer **all** questions in sections A and B, and **two (2)** questions from section C.
3. Drawings should be in pencil and all drawings in section C should be prepared in **A3 standard paper** format.
4. Cellular phones, calculators and any unauthorized materials 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 in the answer booklet provided.
- (i) The dimensions of drawing paper size A4 is
A 420 x 297 B 841 x 1189 C 210 x 297 D 594 x 841 E 210 x 420.
- (ii) What is lettering in architectural drawing?
A A systematic labeling of different parts of a drawing
B A serially arrangement of dimensions on a drawing
C An indication of the materials required for the drawing
D An additional information which cannot be shown by the lines
E A brief description of the hidden parts of a drawing
- (iii) Lights for the stairway must be controlled from
A the bottom of the stair B both ends of the stair.
B outside the building. D the landing of the stair
E the soffit of the stair case.
- (iv) The aspect of unlimited varieties of tastes and needs of individuals in the residential house planning is achieved by
A consultations with the client. B involving an Architect.
C the use of planning check list. D discussions with the building team.
E discussions with the expected occupants.
- (v) What is the aim of the window schedule?
A to ensure finishing and ordering manufactured items as required.
B to ensure complete finishing and materials specifications.
C to ensure sizes and complete finishing of the items.
D to check standards and quality of the materials used.
E to help the quantity surveyor in cost estimations.
- (vi) What is the advantage of chimney breast projecting externally?
A To get warmth from heat of the sun
B Adding value to the building aesthetics
C Saving room space in the building
D Being able to hold more than one flue
E To facilitate smooth down-draught
- (vii) What is the purpose of vent provided on the drainage system?
A making the sewage easily dissolved.
B facilitating digestion by giving long life to bacteria.
C facilitating the breaking down of solids.
D balancing air pressure in the drainage system.
E facilitating inspections of the drainage system.

(viii) What is the a function of window sill?

- A to prevent moisture penetrating into the building.
- B to exclude rain water from the wall.
- C to support the load of structure above it.
- D to prevent rain water through the window.
- E to allow for ventilation and lighting.

(ix) What does the building specifications meant to the contractor?

- A tell the methods and techniques of construction.
- B tell the materials required for construction.
- C tell the materials and methods of constructions.
- D tell the conditions of construction.
- E tell the materials, methods and conditions for constructions.

(x) The first step in perspective drawings is

- A to draw the plan of the block.
- B to draw the side elevation of the block.
- C to draw perspective lines from the block.
- D to draw a parallel line to side of the block.
- E to draw a plumb line to side of the block.

2. Match the meaning of stair case items in **List A** with the responses in **List B** by writing a letter of the correct response beside the item number in the answer booklet provided.

List A		List B
(i)	The portion of stair which permits ascent and descent.	A Header
(ii)	No-slip strip inserted across the tread.	B Run
(iii)	Vertical portion of a step providing support to the tread.	C Soffit
(iv)	Wooden piece fastened to the carriage to support the treads.	D Nosing
(v)	Vertical distance between two successive tread faces.	E Scotia
(vi)	The level platform at the top or bottom of a flight between floors.	F Headroom
(vii)	The horizontal distance between two successive tread faces.	G Going
(viii)	The projecting part of the tread beyond the vertical face.	H Landing
(ix)	The degree of sloping of a stair to another floor.	I Rise
(x)	The inclined surface underside the stair case.	J Step
		K Checkered grooves
		L Cleat
		M Winder
		N Riser
		O Pitch

SECTION B (40 Marks)

Answer **all** questions in this section.

3. Sketch the isometric axes and label to show the procedure and meaning of each axis.
4. Outline four ways of caring drawing boards.
5. Mention four factors which influence an architect in selecting the type of foundation for a building.
6. List down eight information that can be obtained from the site plan drawing.
7. Sketch the sectional-elevation of a stair plan as shown in **Figure 1** through section line A-A.

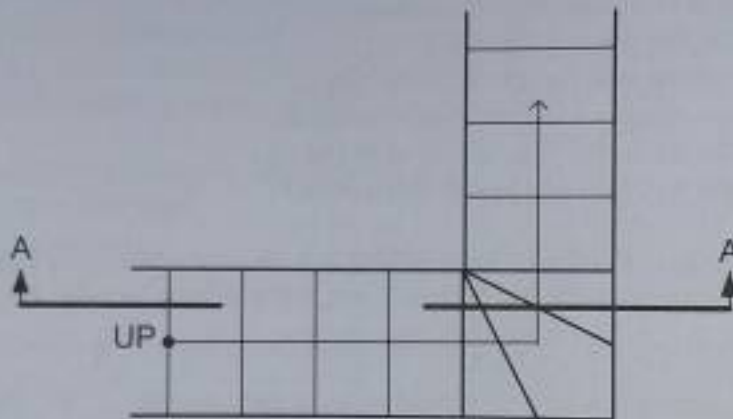


Figure 1

8. Briefly explain the following electrical terms:
 - (a) Circuit
 - (b) Conduit
9. Describe the following as principles of design:
 - (a) Proportions
 - (b) Unity
10. Briefly explain the application of dead shores in construction works.
11. Elaborate four objects of foundation to a building.
12. Sketch a part of timbering to trenches on loose and water logged soil and show four major parts.

SECTION C (40 Marks)

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

13. (a) Briefly explain the two types of settlements of a building foundation. (04 marks)
- (b) With the aid of a raking shore sketch, explain and demonstrate the precautions which must be observed during excavation of a trench near the existing building. (10 marks)
- (c) By citing the structure and area of application, distinguish between wide strip foundation and raft foundation. (06 marks)
14. (a) By using **one** sketch, illustrate the following parts of a roof:
- | | | |
|-----------------|-------------|------------------|
| (i) valley | (ii) ridge | (iii) hipped end |
| (iv) roof slope | (v) hip | (vi) verge |
| (vii) gable-end | (viii) eave | |
- (08 marks)
- (b) Draw a sketch of a boxed cornice and show the following parts:
- | | |
|--------------------|--------------------|
| (i) Soffit board | (ii) Ceiling board |
| (iii) Fascia board | (iv) Wall plate |
- (06 marks)
- (c) Describe how to protect roofs and roof covers from the effect of:
- | | |
|---------------|------------|
| (i) Corrosion | (06 marks) |
| (ii) Wind | |
15. (a) Draw an elevation of a four-panel door made up of hardwood timber (mninga). The sizes of members are as follows:
- | |
|------------------------------------|
| (i) Top rail; 40 mm x 100 mm. |
| (ii) Middle rail; 40 mm x 150 mm. |
| (iii) Bottom rail; 40 mm x 300 mm. |
| (iv) Stiles; 40 mm x 100 mm. |
- The overall door size is 1200 mm x 2200 mm.
 - The middle rail is exactly at the middle from the bottom edge of the bottom rail.
 - All stiles are fixed at equal distances from each other.
 - Panels are chamfered 150 mm all around at both sides of the door.
- (12 marks)
- (b) Draw the horizontal and vertical sections of a door by assuming the cutting plane line passes through the panels. (08 marks)