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

072 ARCHITECTURAL DRAUGHTING
(For Both School and Private Candidates)

TIME: 3 Hours 8 November 2000 P.M.

Instructions

1. This paper consists of sections A and B.
2. Section A has six questions while section B has two questions.
3. Attempt any FOUR (4) questions from section A and any ONE question from section B.
4. Each question in section A carries 15 marks while each question in section B carries 40 marks.
5. Write your Examination Number on each page of your answer booklet(s).

This paper consists of 4 printed pages.

SECTION A

1. (a) What is a drawing? State the main purpose of a drawing.

   (b) Differentiate between

      (i) artistic drawing and engineering drawing

      (ii) technical (or engmeering) drawing and architectural drawing.

   (c) What are the uses of the following instruments in drawing?

      (i) A tee square

      (ii) A draughting brush.

2. (a) What is the essence of scale drawings in drawings?

   (b) Differentiate between diagonal scales and plain scales.

   (c) A rectangular plot of 25 square kilometres is represented in a block plan by a similar rectangle of one square centimetre. Draw a plain scale to show kilometres and on this show a distance of 65 km.

3. (a) In residential buildings a house is divided into three major areas for planning. List the major areas and for each list four rooms.

   (b) What are the factors considered when deciding on the size of a room?

   (c) Which part of a home should have the most isolation and quietness? Give reason.

4. (a) To a scale of 1:20, draw a segmental arch spanning over a 3600 mm opening. The rise of the arch is 800 mm and the height of the arch is 1½ bricks. Show construction lines.

   (b) Show the following:

      (i) Extrados (ii) Skew back (iii) Springing line.

5. A framed ledged braced and battened door is 900 mm wide and 2100 mm high. The door has 7 battens 20 mm thick. The top rail and stiles are 100 x 45 mm, the middle and bottom rails are 140 x 25 mm and the brace is 100 x 25 mm. To a scale of 1:10, draw

   (a) the elevation of the door
   (b) the longitudinal section.

6. (a) What are the functions of the following in a fireplace?

      (i) Fire back (ii) Throat.

   (b) Draw a neat sketch of a section through an open fire place and show the following:

      (i) Fire back (ii) Throat (iii) Hearth (iv) Lintel

      Fire back Throat Hearth Lintel

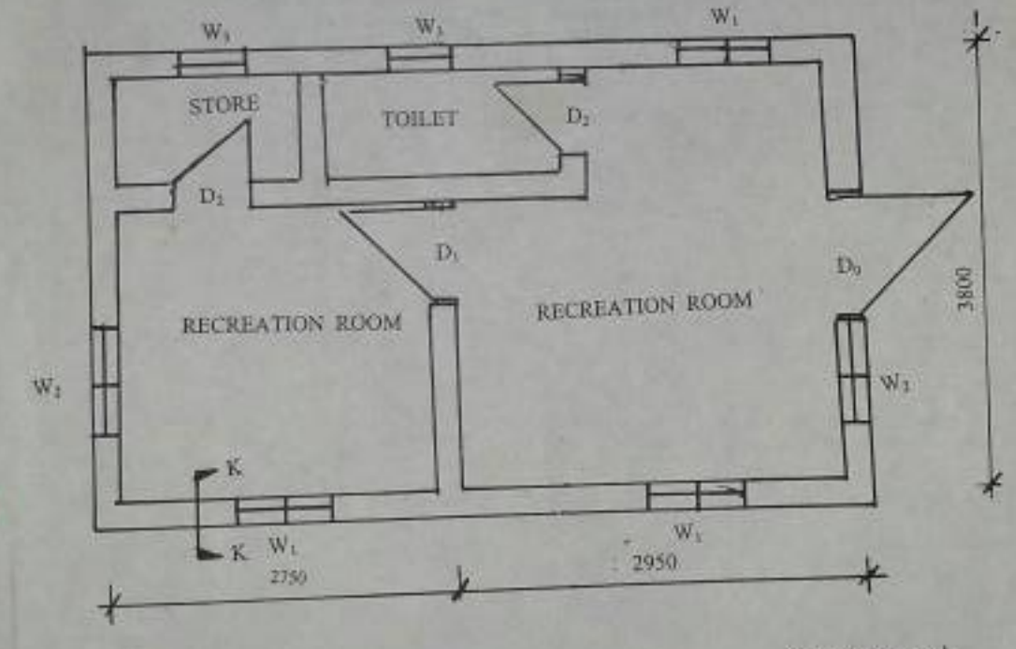
SECTION B

7. Figure 1 is the floor plan of a social club. The walls of the club are cavity walls with cavities of 60 mm. The sizes of the windows are as follows:

W_1 = 1200 x 700 mm
W_2 = 1200 x 800 mm
W_3 = 800 x 600 mm

The sizes of the doors are as follows:

D_0 = 2100 x 850 mm
D_1 = 2000 x 800 mm
D_2 = 2000 x 700 mm



Not drawn to scale

Fig. 1

(a) To a scale of 1:5, draw the eaves detail at section K-K, given the following specifications:

- Pitch of the roof = 30°
- Roof covering material = plain tiles (270 x 160 mm)
- Battens are 40 x 20 mm
- Gauge = 100 mm
- Tie beam (ceiling joist) rafters are 50 x 100 mm
- Wall plate = 100 x 75
- Pitch of roof = 45°
- A soffit board (200 x 20) and fascia is 25 x 175
- Closed eaves
- A semi circular gutter (radius = 50 mm) is provided at the end of eaves
- The soffit board is supported on gutter bearers 50 x 50 mm
- 50 mm thick plaster is applied on the internal face of the wall

Any other assumptions made should clearly be shown on the drawing.

(b) Prepare a door and window schedule for the building.

8. A septic tank has the following internal measurements: 2700 mm long, 900 mm wide and an average depth to the top of water level of 1300 mm. Two inspection chambers 450 x 450 mm (internal dimensions) are provided on each end of the tank. If the invert level of the chamber at entrance is 300 mm deep, draw to a scale of 1:10 a cross section through the septic tank. Assume wall thickness is 230 mm, the top cover 75 mm and the concrete bed 150 mm with an even slope of 1 in 20 towards the inlet side. The manhole covers are 450 x 450.

Any other assumptions should clearly be indicated on the drawing.