

29.20 DRAWING AND DESIGN (449)

29.20.1 Drawing and Design Paper 1 (449/1)

449/1

DRAWING AND DESIGN

Paper 1

Oct./Nov. 2008

2½ hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

Kenya Certificate of Secondary Education

DRAWING AND DESIGN

Paper 1

2½ hours

Instructions to Candidates

You should have the following materials for this examination:

Drawing instruments

3 sheets of drawing paper size A3

Scale rule

This paper consists of three sections; A, B and C.

Answer all the questions in sections A and B and any two questions from section C.

Questions in section A must be answered on the answer sheets provided.

Questions in sections B and C should be answered on the A3 sheets of drawing paper provided.

All dimensions are in millimetres unless otherwise stated.

Candidates may be penalised for not following the instructions given in this paper.

This paper consists of 8 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

SECTION A (40 marks)

Answer all the questions in this section on the answer sheets provided.

- 1** (a) State the use and **one** advantage of each of the following drawing papers:
- (i) grid
 - (ii) tracing (2 marks)
- (b) State the title and role of a person with the following qualification in a design office:
- (i) degree in civil engineering;
 - (ii) diploma in civil engineering. (2 marks)
- 2** (a) List **three** principles of design. (1½ marks)
- (b) State the meaning of each of the symbols shown in figure 1.

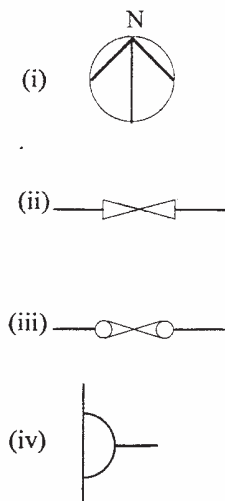


Figure 1

(2 marks)

- 3** Explain each of the following methods of joining metals:

- (a) soft soldering;
- (b) brazing;
- (c) welding. (3 marks)

- 4 Figure 2 shows two views of a block in third angle projection.

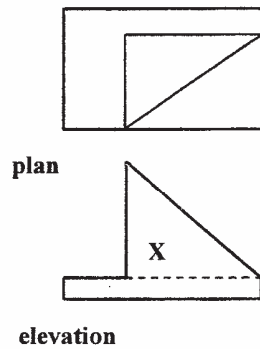


Figure 2

- Sketch an oblique view of the block with X and the nearest face. (4 marks)
- 5 Construct a four sided polygon ABCD with side to length ratios of 2:1 : 2.5:1.5 and a perimeter of 210 mm given that angle ABC is 90° . Measure the smallest angle. (3 marks)
- 6 Construct a diagonal enlargement scale of 2:1 to measure to an accuracy of 0.5mm up to 60mm. Show the readings of 51.5 and 26.5 mm on the scale. (4 marks)
- 7 (a) Figure 3 shows an elevation of a template.

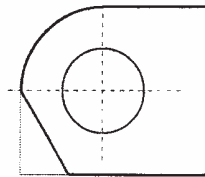


Figure 3

Measure and dimension the:

- (i) circle;
- (ii) radius;
- (iii) angle of the slanting face. (3 marks)

- (b) On the perspective grid provided, sketch a two point perspective of the block shown in figure 4. (3 marks)

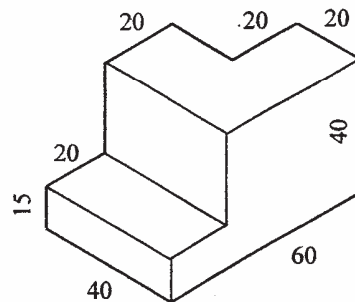
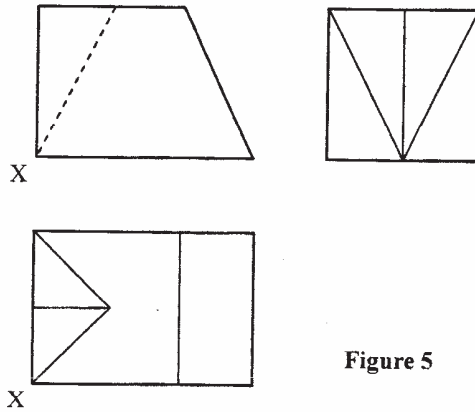


Figure 4

8 Construct a regular heptagon (seven-side polygon) whose sides are 25mm. (4 marks)

9 Figure 5 shows three views of a block in first angle projection.



Sketch the isometric view of the block taking **X** as the lowest point. (3½ marks)

10 Figure 6 shows an isometric drawing of a strapped block.

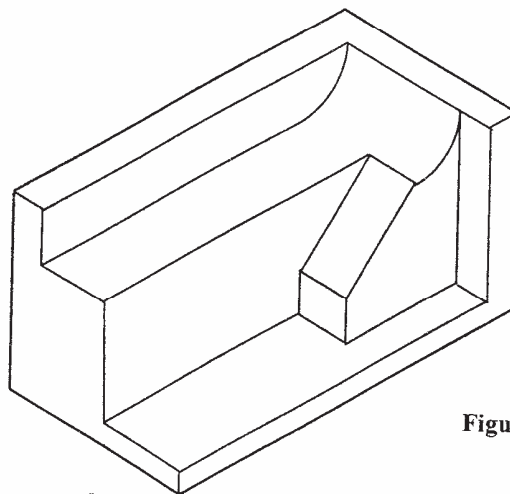


Figure 6

Sketch the front elevation and plan of the block in third angle projection. (5 marks)

SECTION B (30 marks)

Question 11 is compulsory.

Candidates are advised to spend **not more than one hour** on this question.

11 Figure 7 shows parts of a bearing bracket drawn in third angle projection. Assemble the parts and draw FULL SIZE the following:

- (a) Sectional front elevation along the cutting plane C - C.
- (b) End elevation in the direction of arrow D. Insert **four** leading dimensions.

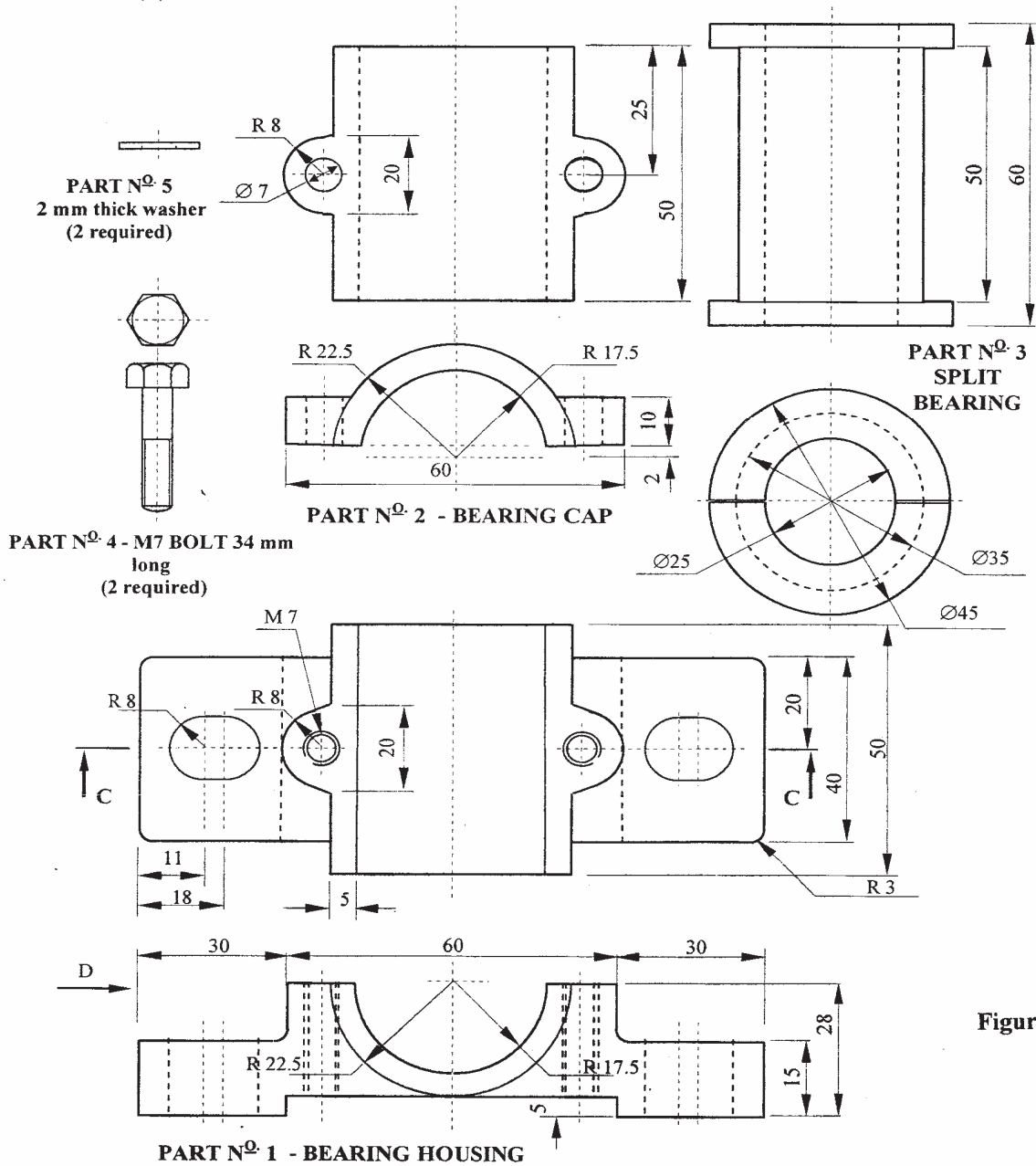


Figure 7

SECTION C (30 marks)

Answer any two questions from this section.

- 12 Figure 8 shows a feed hopper in the form of a square pyramid truncated along Y - Y and Z - Z.

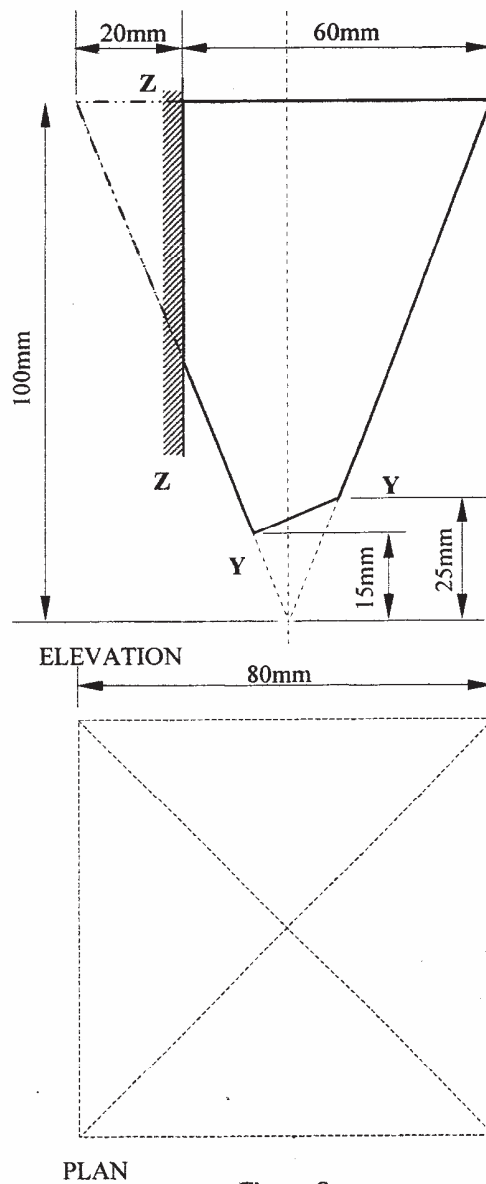


Figure 8

- (a) Copy the given view and complete the plan.
(b) Draw the surface development of the hopper.

(15 marks)

13 Figure 9 shows an isometric view of a machined block.

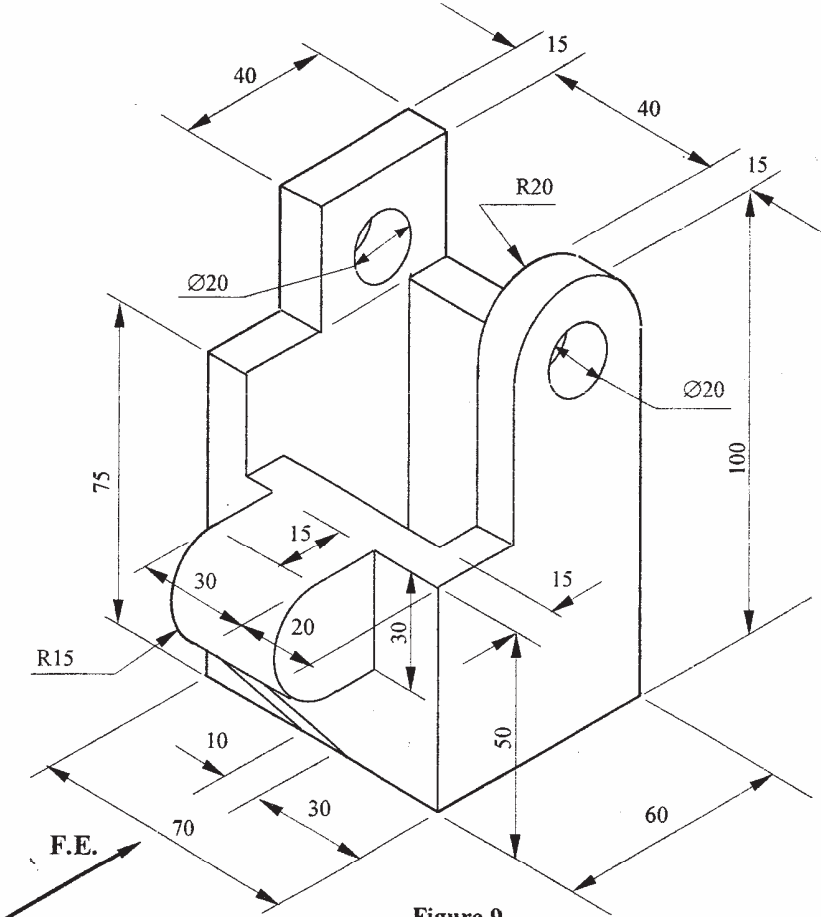


Figure 9

Draw FULLSIZE in third angle projection the three orthographic views of the block.

(15 marks)

14 Figure 10 shows a floor plan of a house.

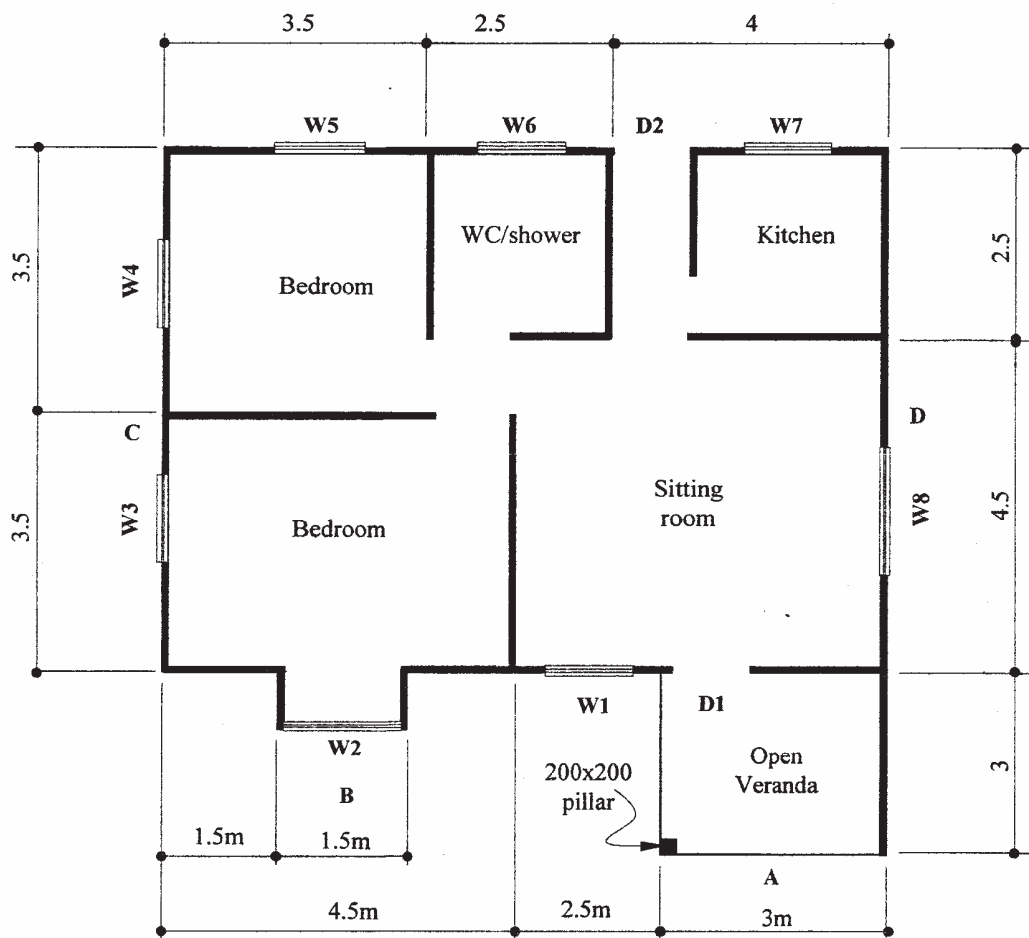


Figure 10

01

Given the following specifications, draw to a scale of 1:100 the following views:

- (a) Elevation 01
- (b) Roof plan showing valley, hip and ridge lines.

Specifications:

End A and B gabled
 End C and D hipped
 Floor to ceiling height is 2.8m
 Roof of equal pitch of 30°

Doors and window schedule:

W₁ 1200 x 1200 steel casement
 W₂ 1000 x 1000 steel casement
 D₁ 1000 x 2000 steel casement

(15 marks)