# DRAWING AND DESIGN PAPER 1

# KCSE 2011

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## Drawing and Design Paper 1 (449/1)

**SECTION A** (50 marks)

*Answer **all** the questions in this section in the spaces provided.*

**1** (a) Give the following information regarding parastatal organizations in Kenya with respect to:

(i) ownership; (1 mark)

(ii) management; (1 mark)

(iii) services; (1 mark)

(b) Describe **four** main steps involved in design process. (4 marks)

**2** (a) (i) State **one** reason for using different types of lines in drawing. (1 mark)

(ii) Explain **one** use of each of the following lines:

_____ – _____ – _____ – _____

_____ – – _____ – – _____ – – _____

(1 mark)

(b) Outline **six** advantages of using computers in drawing. (3 marks)

**3** (a) State **one** disadvantage of using each of the following items to hold paper on the drawing board.

(i) masking tape; (1 mark)

(ii) thumb pins. (1 mark)

(b) Describe each of the following manufactured boards:

(i) plywood; (1 mark)

(ii) chip board; (1 mark)

(iii) blockboard. (1 mark)

4 Figure 1 shows a template drawn full size.

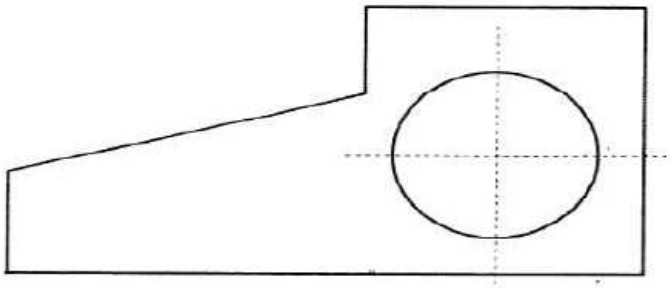


Figure 1

Measure and dimension the hole and angle of the slanting face. (2 mark

5 Figure 2 shows a pictorial view of a block.

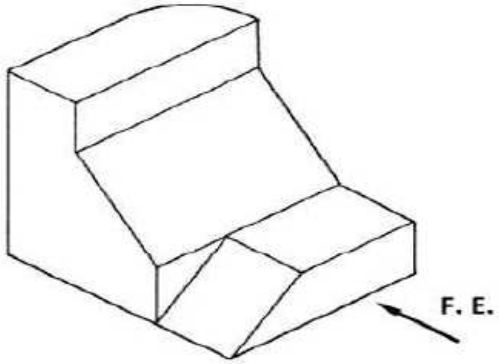



**Figure 2**

Using third angle projection, sketch in good proportion the orthographic views of the block. (6 mark

6. **Figure 3** shows two views of a block drawn in first angle projection. In good proportionality sketch the block in oblique projection. (6 marks)

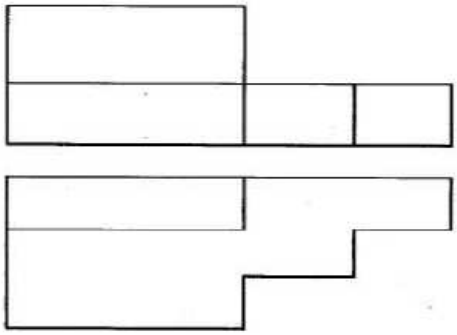


**Figure 3**

7 Construct an internal common tangent to the circles given in figure 4.

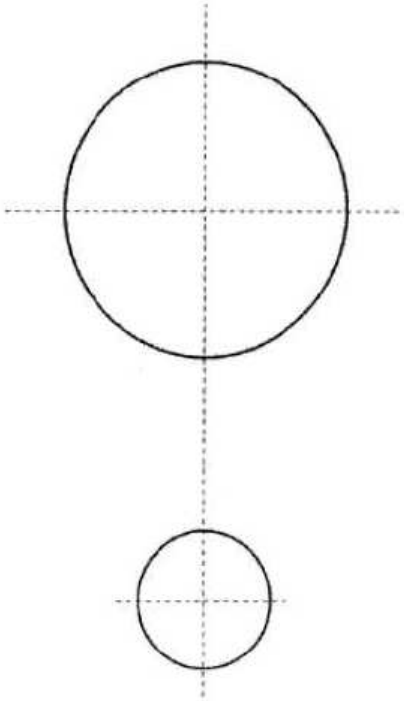


Figure 4

(7 marks

8 The following lines were drawn using different scales.

(a) A _____ B

(b) C _____ D

Determine the distance represented by each line using the given scale. (3 marks)

(i) Line AB if the scale used is 1:2

(ii) Line CD if the scale used is 2:1.

**9** A right square pyramid is truncated along X-X and Y-Y as shown in figure 5.

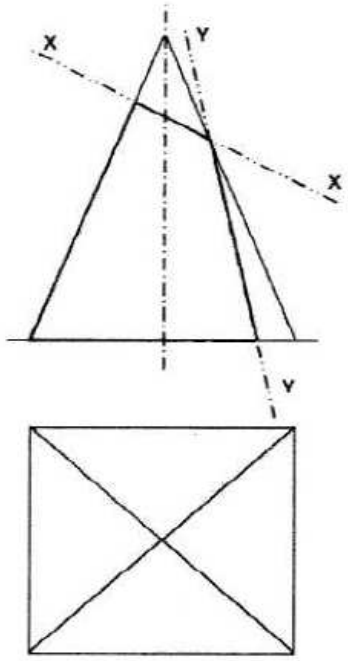



**Figure 5**

Complete the plan. (4 marks)

**10** Figure 6 shows two views of a shaped block drawn in first angle projection.
Sketch the third view by projecting from the given views. (5 marks)

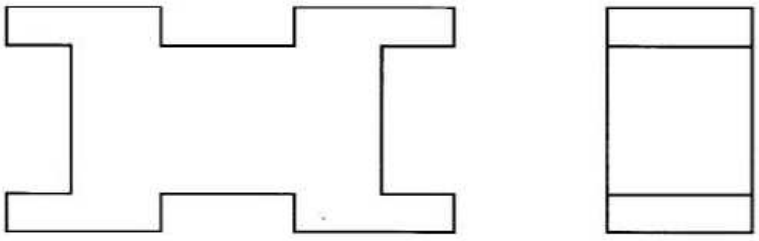
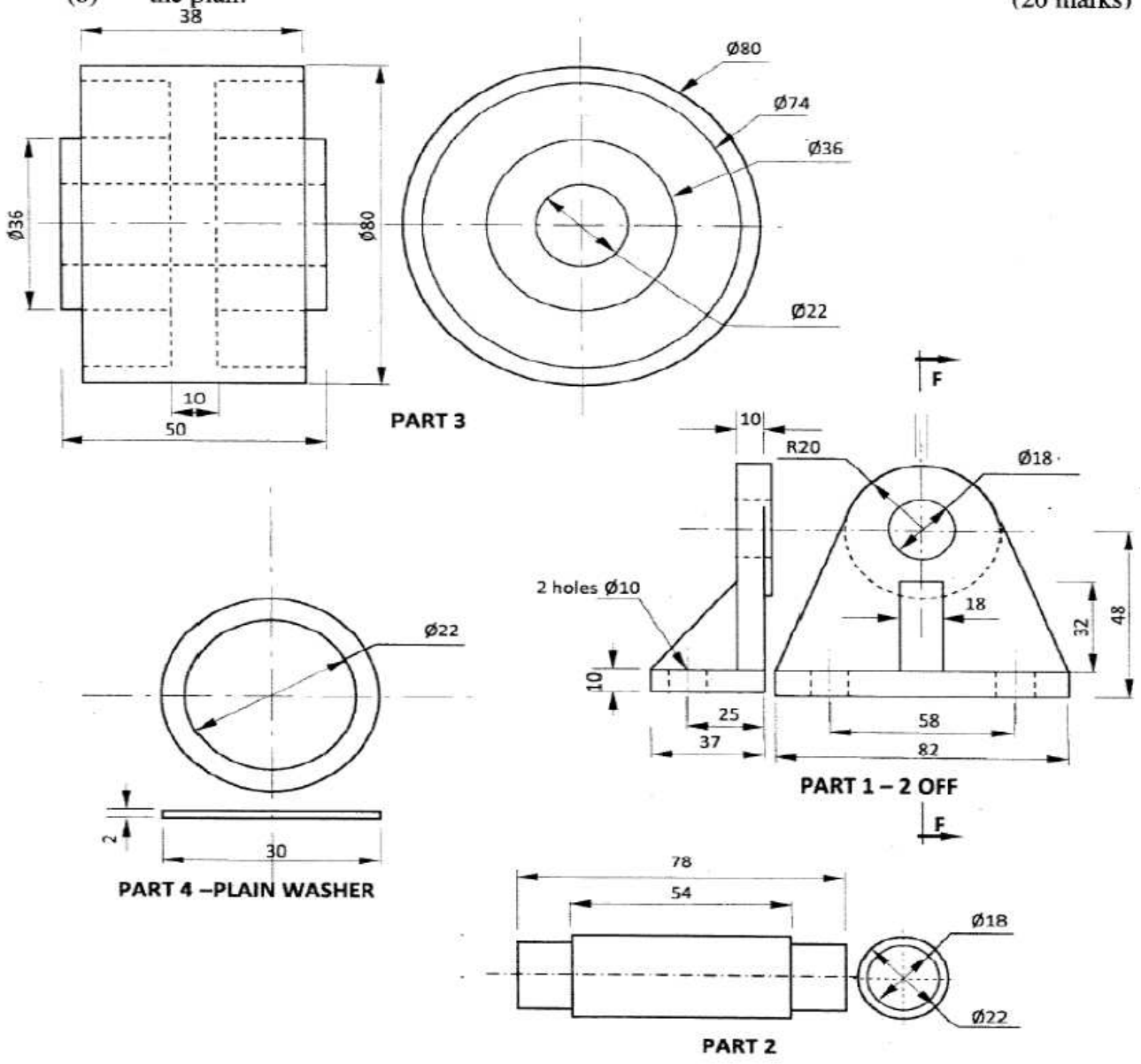


**Figure 6**

## SECTION B (20 marks)
***This question is compulsory.***

**11** Figure 7 shows parts of a machined component drawn in first angle projection. Assemble the parts and draw the following:

(a) sectional front elevation through the cutting plane F-F;
(b) the plan. (20 marks)



## SECTION C (30 marks)

*Answer any **two** questions from this section.*

**12** Figure 8 shows the three orthographic views of a machined block drawn in first angle projection. Draw full size, the isometric view of the block taking corner **X** as the lowest point (15 marks)

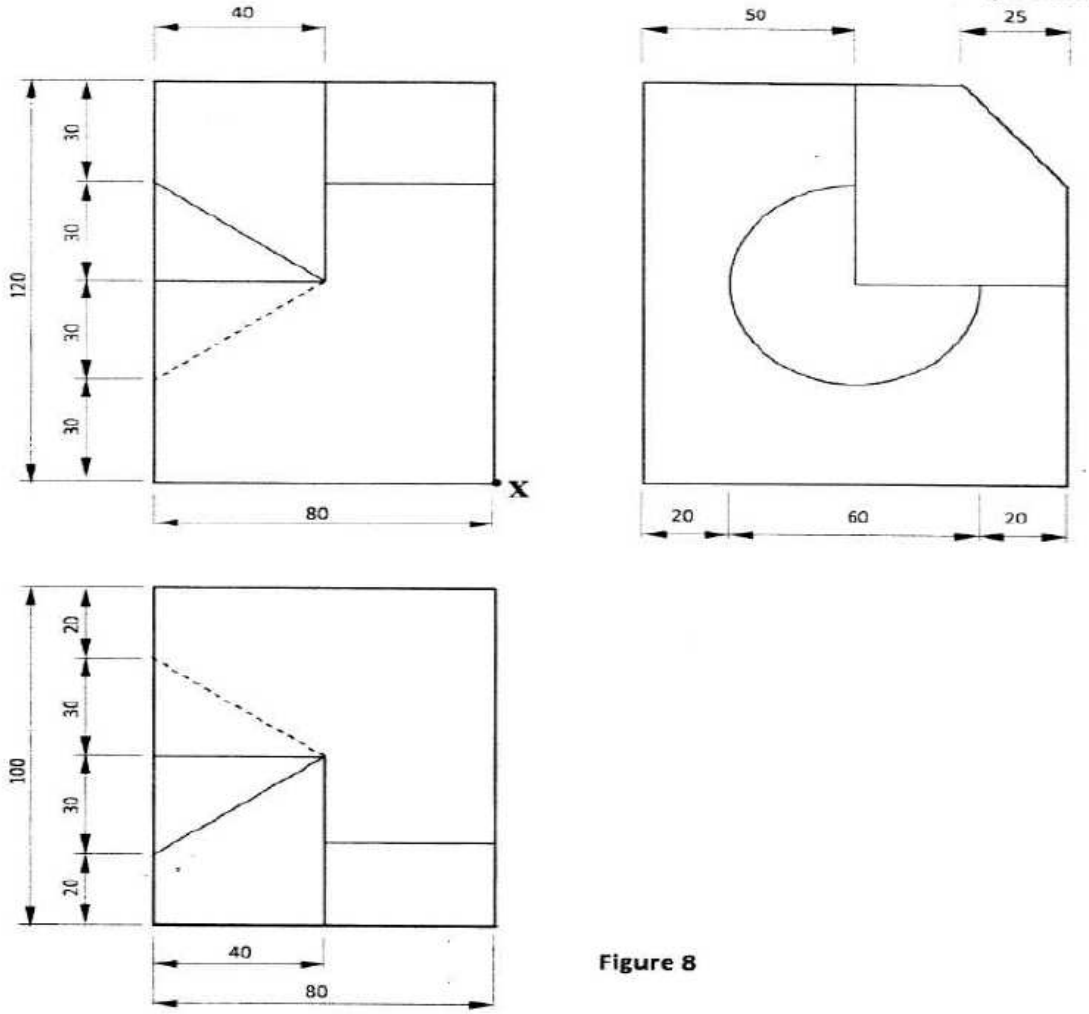



**Figure 8**

**13** In the mechanism shown in figure 9, the crank EF rotates about centre E while GH oscillates about G.

Plot the locus of point P for one complete revolution of EF. (15 marks)

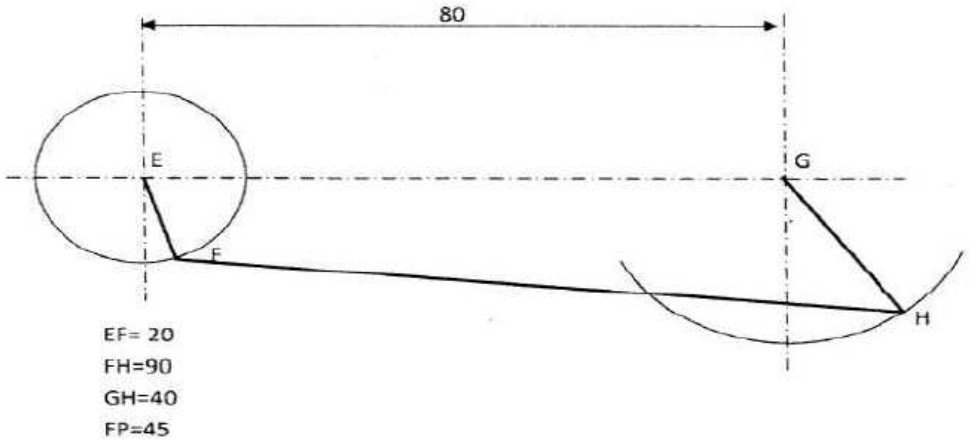



**Figure 9**

**14** Figure 10 shows a branch pipe A connected to a conical shaped base of a chimney B.

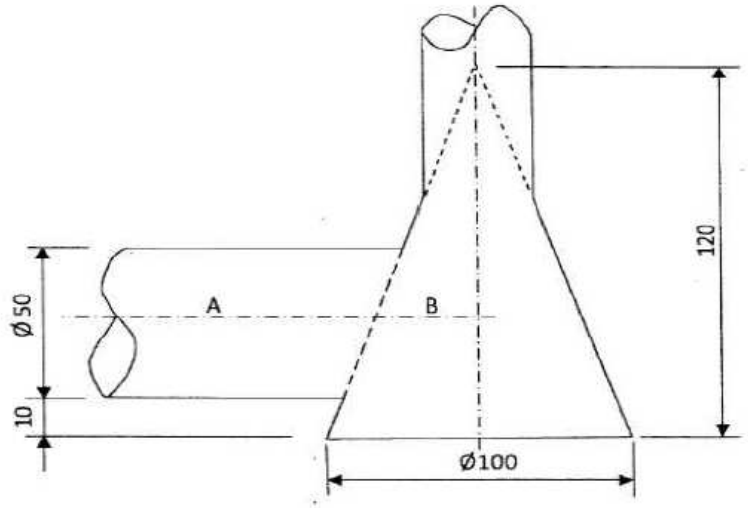



**Figure 10**

Draw the curves of interpenetration between the pipe and the conical base in:

(a) plan
(b) elevation.

(15 marks)