EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Geometrical and Mechanical Drawing 7040/1

PAPER 1

Wednesday 28 OCTOBER 2015

Additional materials:
A2 Drawing paper (1 sheet)
Standard drawing equipment

Time: 2 hours 40 minutes **marks: 100**

Instructions to candidates

Print your **name, centre number** and **candidate** number in the Title Block at the bottom right-hand corner of your drawing paper.

There are **eight** questions in this paper. Answer **five** questions.

Answer not more than **three** questions from any one section.

Unless otherwise stated, strictly geometrical methods must be used. Solutions should be drawn full size and no dimensions are required. All construction lines must be shown clearly. Lines which are parallel, perpendicular or inclined at angles of 30°, 45° or 60° to other lines may be drawn without showing construction lines.

All the drawings in this question paper are **NOT DRAWN TO SCALE.**

Use only one sheet of A2 drawing paper.

You may use **both** sides of the drawing paper for your answers.

Information for candidates

The number of marks is given in brackets [ ] at the end of each question or part question.

All dimensions are in millimetres unless otherwise stated.

Cell phones are not allowed in the examination room.

SECTION A

PLANE GEOMETRY

Answer two or three questions from this section

QUESTION 1

Figure 1 shows the profile of a garden. AB is elliptical with major axis 120mm and Minor axis 60mm. Straight line BC is tangential at B. Copy the figure full size.

[Total 20 marks]

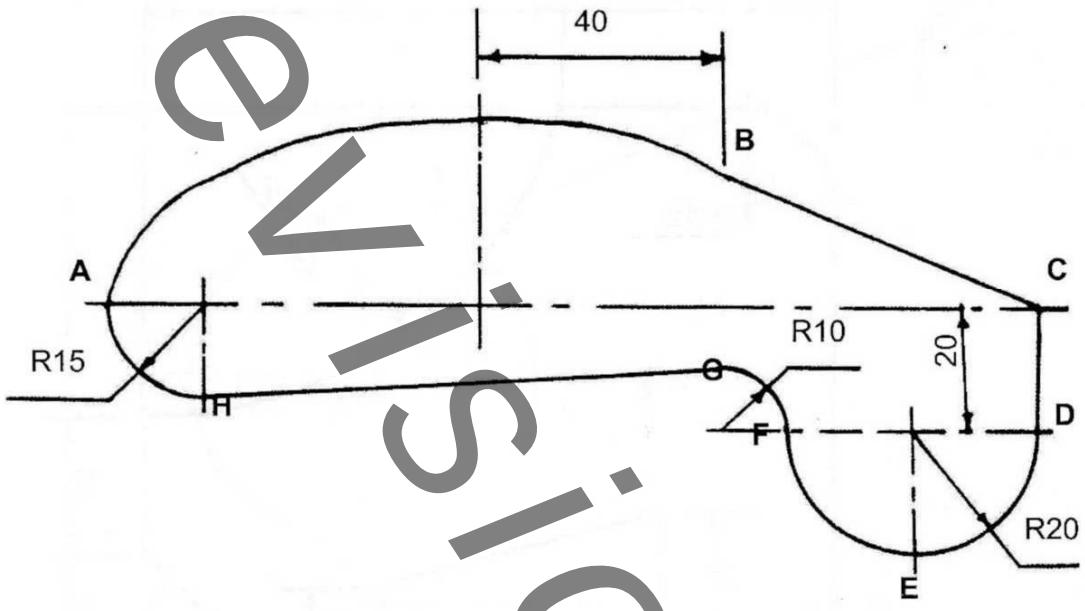

Figure 1

QUESTION 2

A shaped metal plate is shown in **Figure 2**.

(a) Draw the given view full size. [7]

(b) Draw an enlarged view twice the area of the given view. [13]

[Total 20 marks]

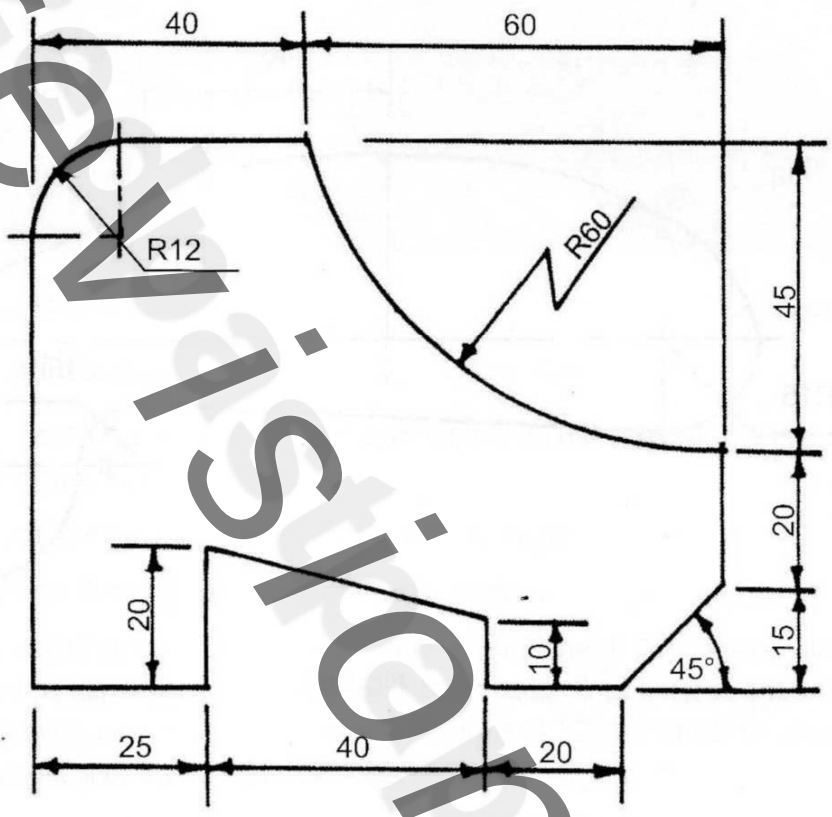

Figure 2

QUESTION 3

A link mechanism is shown in **Figure 3**. The crank AB rotates about A while DC oscillates about D. Point P is on the right rigid BC which is pin-jointed at B and C. AB = 25, DC = 70, BC = 75 and BP = 40.

(a) Plot the locus of point P for one complete revolution of the crank AB.

[Total 20 marks]

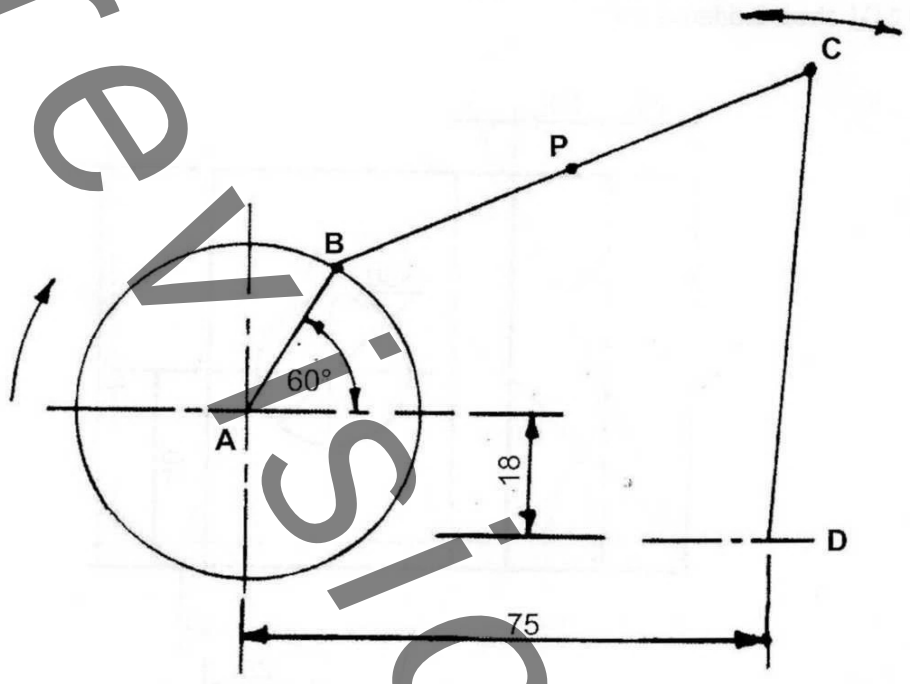

Figure 3

SECTION B

SOLID GEOMETRY

Answer not more than three questions from this section.

QUESTION 4

Figure 4 shows two views of a Machine Block in Third Angle Projection.
DO NOT copy the two views, but draw full size, an isometric view of the block, making point F the lowest point in the drawing.
DO NOT show hidden details.

[Total 20 marks]

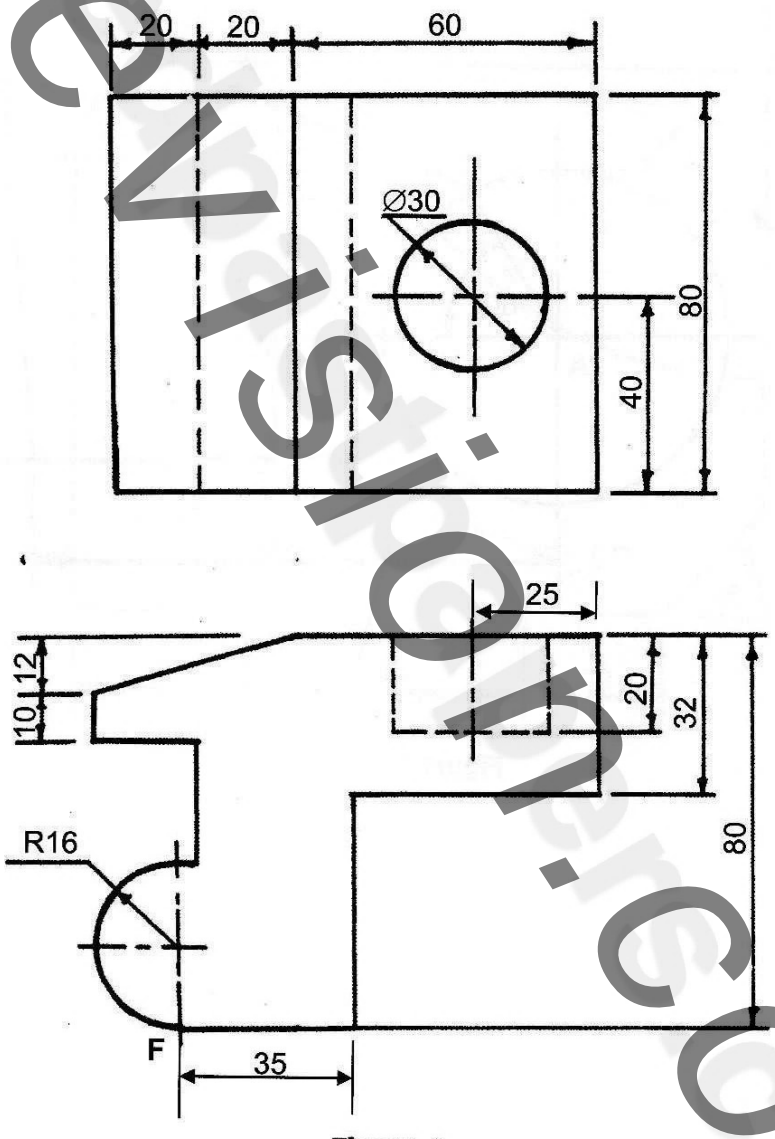

Figure 4

QUESTION 5

A truncated cone is shown in **Figure 5**.

(a) Copy the given view and complete the plan. [7]

(b) Draw the development of the cone with S – S as the seam. [5]

(c) Project a true shape of the truncated surface as seen from arrow K. [8]

[Total 20 marks]

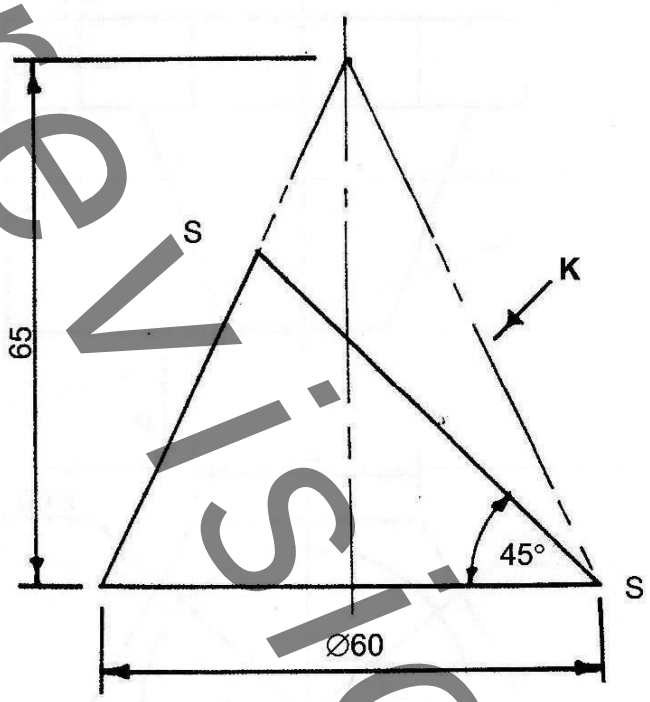

Figure 5

QUESTION 6

Figure 6 shows the plan and elevation of a lamp holder in Third Angle Projection.

(a) Draw the given views. [4]

(b) Project an auxiliary view looking in the direction of arrow E.
Show hidden details. [16]

[Total 20 marks]

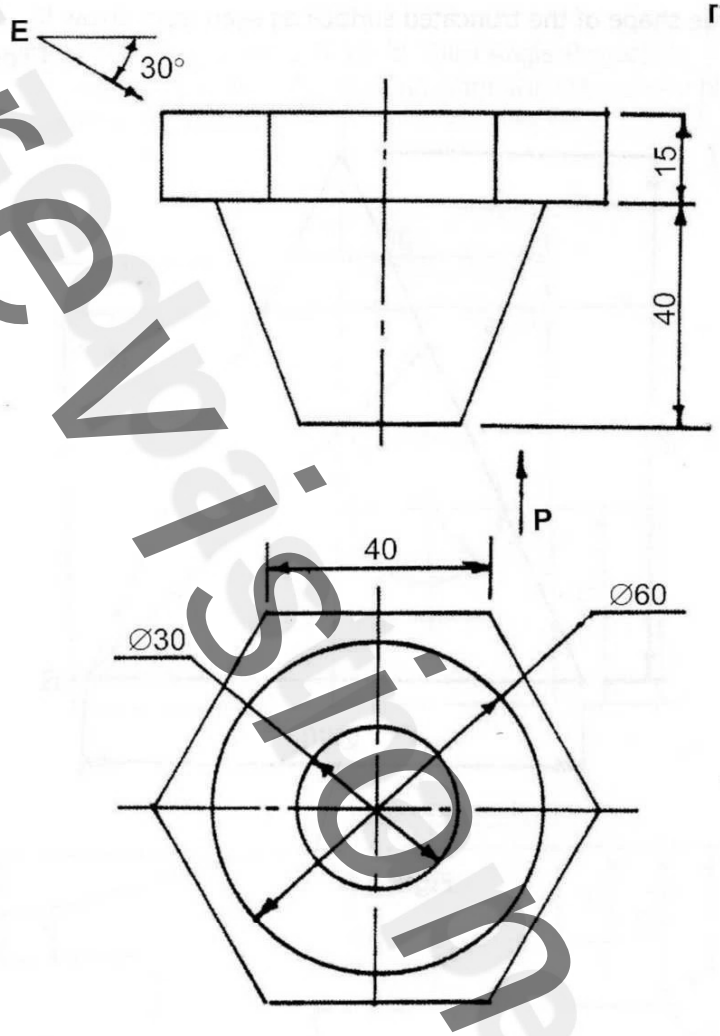

Figure 6

QUESTION 7

Figure 7 shows two views of a straight line ab inclined both to the horizontal and vertical planes.

(a) Draw the two given views. [4]

(b) Determine and state the true length of ab. [7]

(c) Measure, state and indicate the true angle of inclination of the line ab and the:

(i) Horizontal and

(ii) Vertical planes [9]

[Total 20 marks]

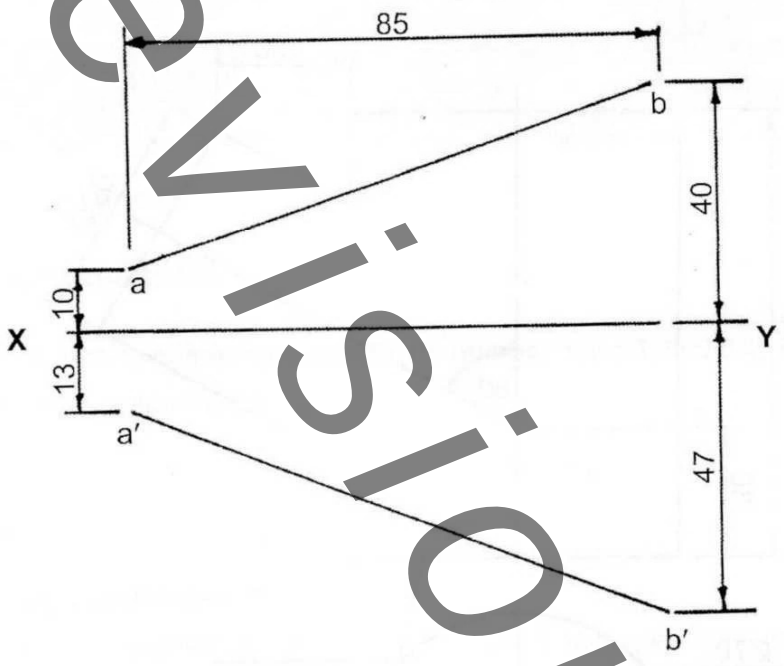

Figure 7

QUESTION 8

Figure 8 shows an incomplete elevation and plan of two cylinders of unequal diameters intersecting at 30°.

(a) Draw the given views. [2]

(b) Complete the elevation clearly showing the curves of intersection between the two cylinders. [11]

(c) Complete the plan. [3]

(d) Project an end elevation viewed from arrow **E**. [4]

[Total 20 marks]

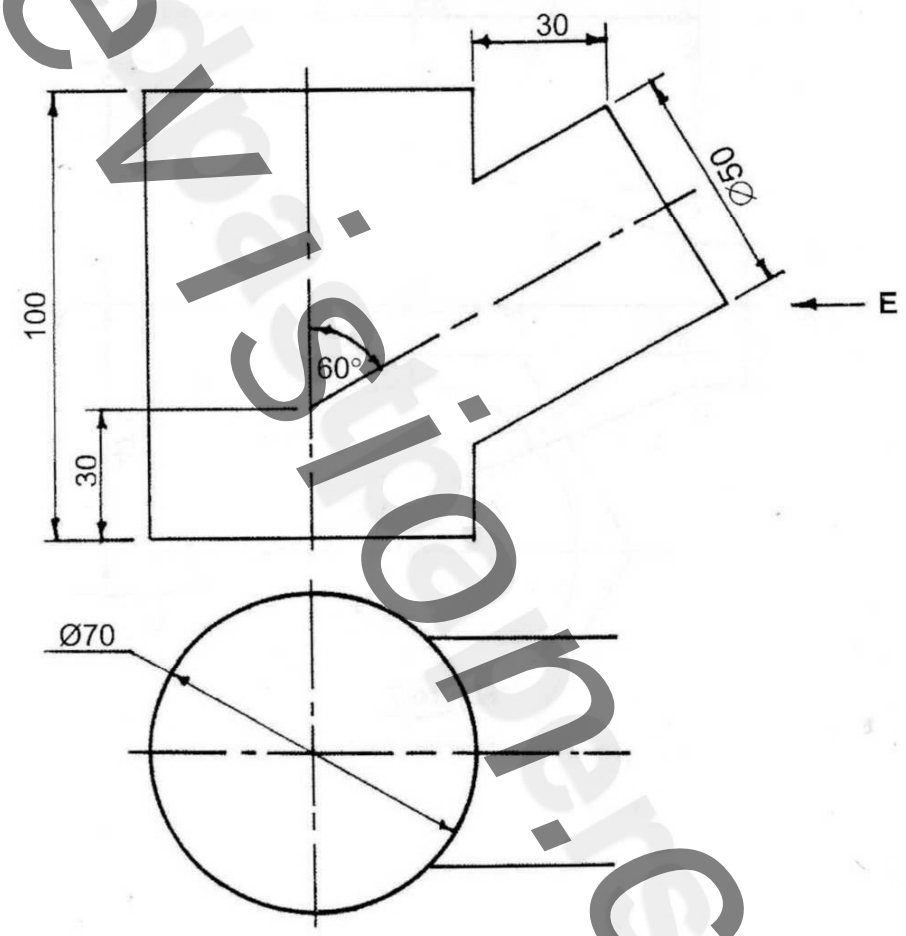

Figure 8