ZIMBABWE SCHOOL EXAMINATIONS COUNCIL
General Certificate of Education Ordinary Level

TECHNICAL GRAPHICS AND DESIGN 4057/1
PAPER 1 Graphic Communication and Geometrical Drawing

SPECIMEN **3 hours**

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Candidate Name…….. ……

Centre Number ……

Candidate Number ……..

[Turn over

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Instructions to candidates

Print your surname, other names, Centre number and candidate number in the spaces provided.
Answer questions in the spaces provided.
All answers should be drawn accurately with instruments unless otherwise stated.
Colour should only be used if asked for in the question.
The number of marks available is shown in the brackets [ ]. Drawing aids may be used.

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Section A

Answer all questions in this section.

1 The symbol ø in Technical Graphics and Design stands for _____. [1]

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2 **Table 2** below shows the number of hours that learners from different departments spend in the library. Draw a bar graph to represent the information. [8]

Table 2

Department	Hours/week per learner
Technical Graphics and Design	10
Agriculture	6
Physical Education	4
Metal Technology & Design	7
Wood Technology & Design	8
Building Technology and Design	9

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3 **Figure 3** shows the side view of a solid truncated right cone. The faces **A** and **B** are to be covered with decorative material. Draw, the true shape of the decorative material before it is fixed onto the faces. [6]

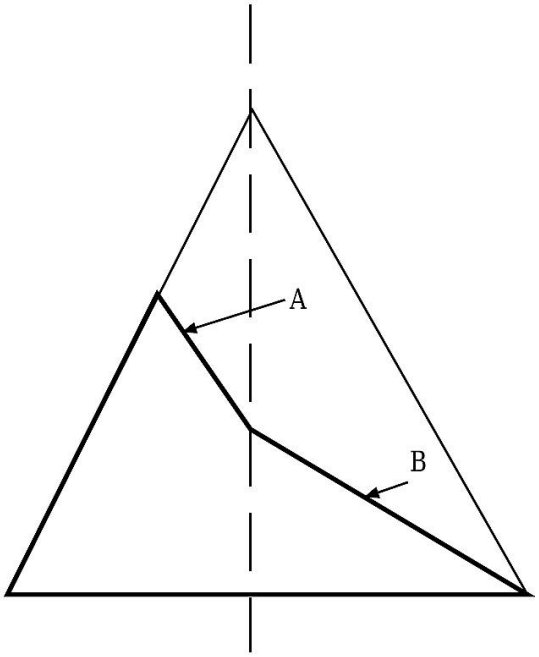


Fig. 3

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4 **Figure 4** shows the outline of an irregular piece of land. A pool of square section is to be constructed with an area equal to it. Show the construction and state the length of one side of the pool. [10]

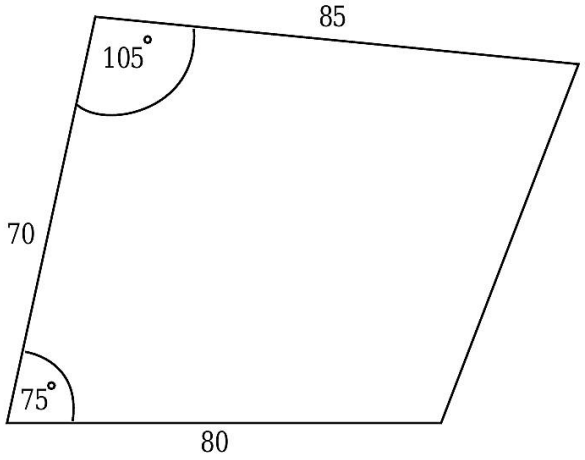


Fig. 4

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5 **Figure 5** shows a plan and an incomplete elevation of a flag pole supported by **5** equispaced ropes to form a regular pentagon on the ground. To a scale of **1:100:**

(a) Draw, the plan and elevation,

(b) Determine the true length of each rope.

[7]

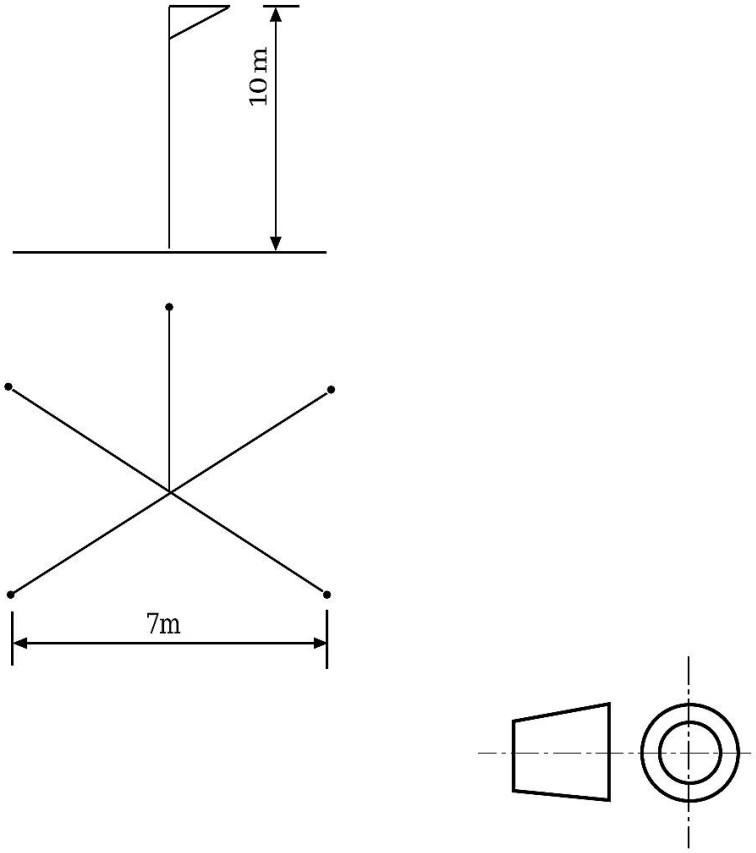


Fig. 5

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6 A point **P**, in **Figure 6**, moves from **A** to **B** at a uniform speed whilst at the same time **A** revolves about fixed point **B** at a uniform speed. As **A** moves through **180°**, point **P** moves from **A** to **B**. Point **P** returns to the starting position through the remaining **180°**. Trace the locus of **P** for one revolution of **AB**. [8]

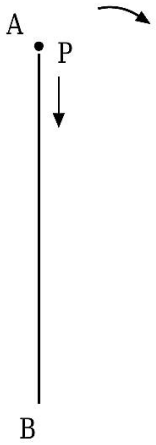


Fig. 6

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Section B

Answer **four** questions in this section, at least **one** question from each option.

OPTION 1

7 The process for preparing instant oats is given below:
Empty the contents into a bowl.
Add boiling water.
Stir rapidly for **3** minutes.
Add some milk.

With the aid of simple diagrams and brief notes, draw, a flow chart showing the preparation. [15]

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8 A petrol station manager has asked for a petrol station sign. Figure 8(a) is suggestion for the sign, but the manager does not like it. Make three possible designs in the spaces provided in Figure 8(b).
Select **one** which you think is the most suitable and make an **accurate drawing** of it with the aid of instruments in the rectangle at the bottom.

Use colour in shading to enhance your design.

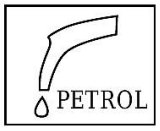


Fig. 8(a)

POSSIBLE SOLUTIONS

Fig. 8(b)

FINAL SOLUTION

Fig. 8

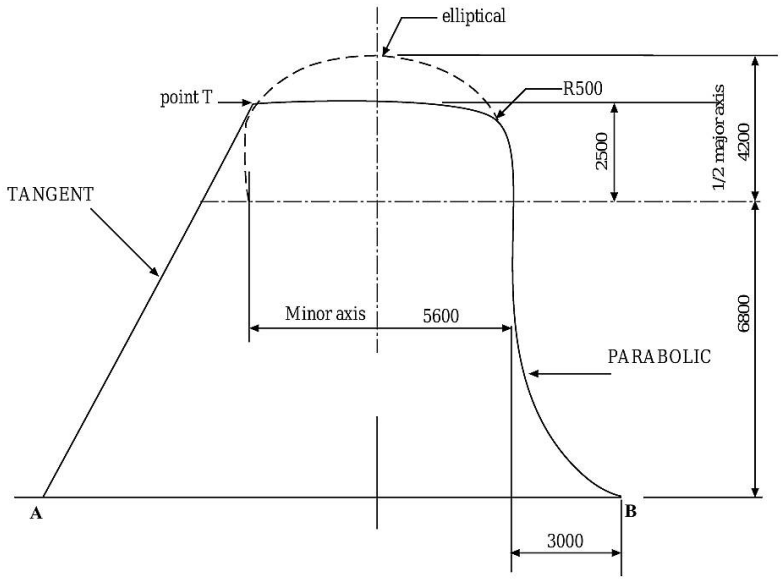
OPTION 2

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9 Figure **8** shows a section across a dam wall. The top end is based on a **semi-ellipse** that is truncated horizontally. The left side is **tangential** to the ellipse at point **T**, while the right bottom is **parabolic**.

To a scale of **1:100**, draw, the profile of the dam wall showing all the necessary constructions.
Measure and state the span **'AB'** of the bottom of the wall.

[15]



SPAN AB.....

Fig. 9

10 **Figure 10** shows **two** gear wheels in mesh with **two** arms **PQ** and **PR** pivoted at **Q**

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and **R**. The gears rotate in opposite directions about O_1 and O_2. Starting from the position shown, draw, the complete locus traced by point **P** as the gear wheels make one revolution.

[15]

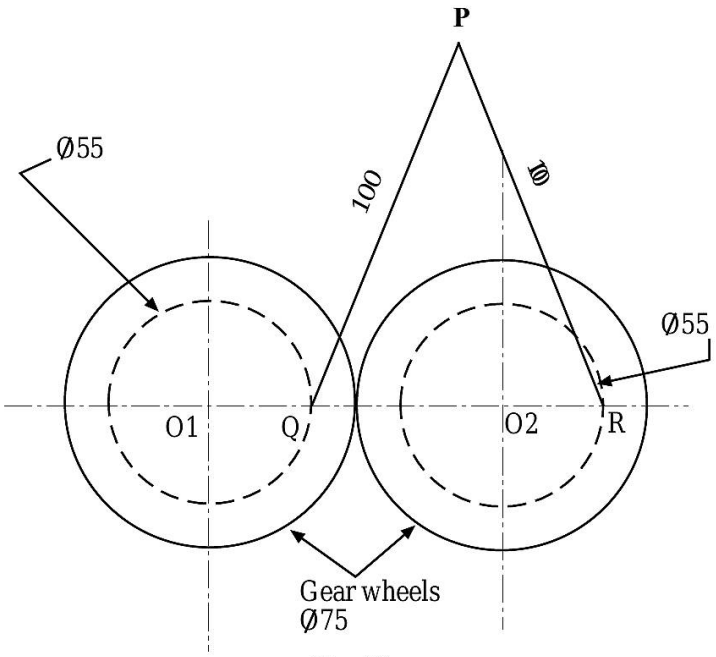


Fig. 10

OPTION 3

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11 **Figure 11** shows the plan and elevation of a cast iron block in first angle projection.

Project an auxiliary elevation in the direction of arrow A.

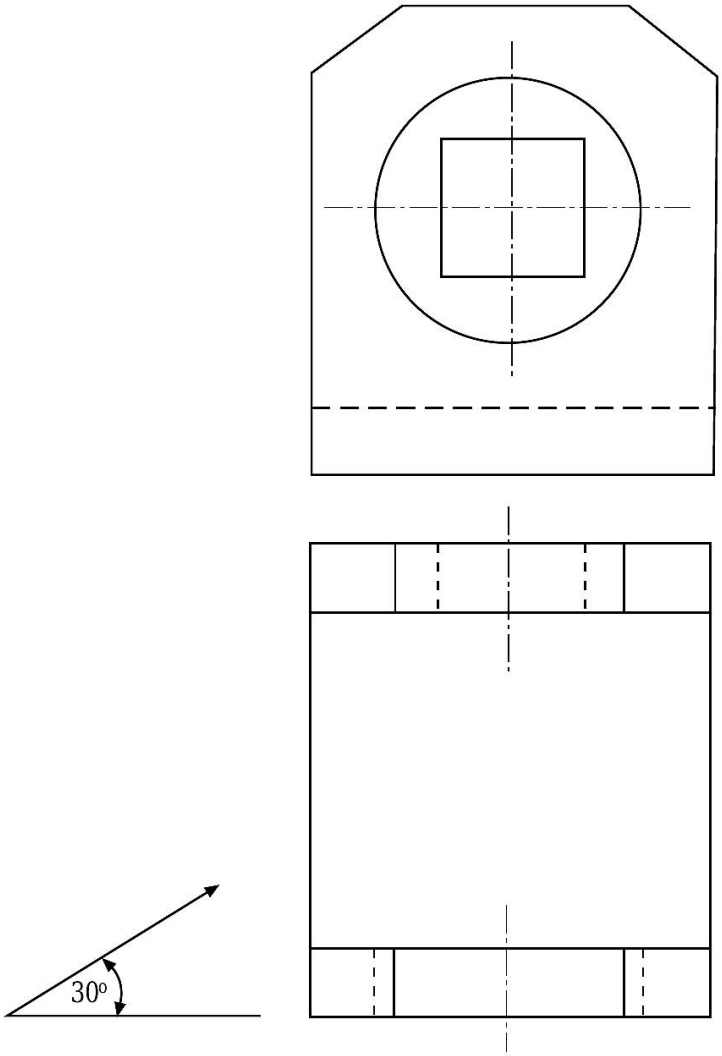


Fig 11

12. **Figure 12** shows an incomplete view of cylinder intersecting with a cone.

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Draw the following:

(a) Complete plan,

(b) Show the curve of intersection on the elevation,

(c) Draw the development of the cone.

[15]

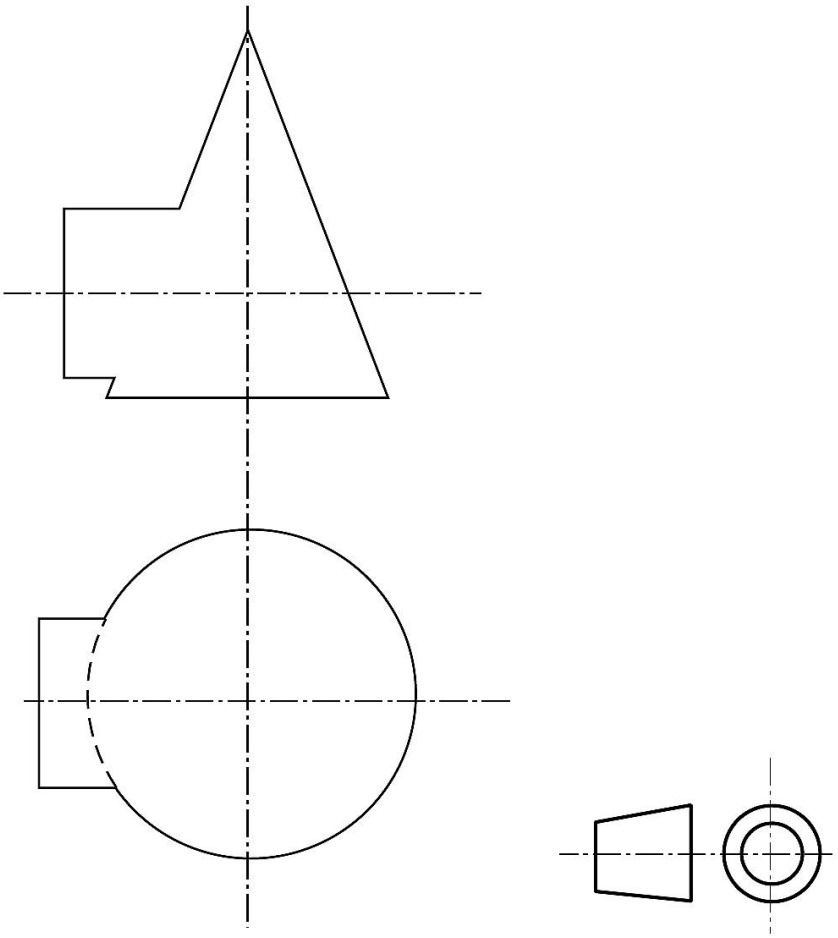


Fig. 12

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