



*Leaving Certificate Examination, 2016*

***Design & Communication Graphics***  
***Higher Level***

***Section A (60 marks)***

**Wednesday, 22 June**  
**Afternoon, 2:00 - 5:00**

**This examination is divided into three sections:**

- SECTION A (Core - Short Questions)  
SECTION B (Core - Long Questions)  
SECTION C (Applied Graphics - Long Questions)

- SECTION A**
- Four questions are presented.
  - Answer **any three** on the A3 sheet overleaf.
  - All questions in Section A carry **20 marks** each.

- SECTION B**
- Three questions are presented.
  - Answer **any two** on drawing paper.
  - All questions in Section B carry **45 marks** each.

- SECTION C**
- Five questions are presented.
  - Answer **any two** (i.e. the options you have studied) on drawing paper.
  - All questions in Section C carry **45 marks** each.

**General Instructions:**

- *Construction lines must be shown on all solutions.*
- *Write the question number distinctly on the answer paper in Sections B and C.*
- *Work on one side of the drawing paper only.*
- *All dimensions are given in metres or millimetres.*
- *Write your Examination number in the box below and on all other sheets used.*

**Examination Number:**

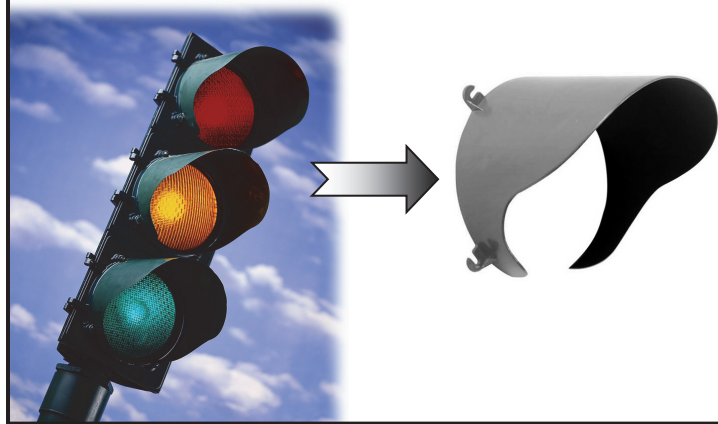
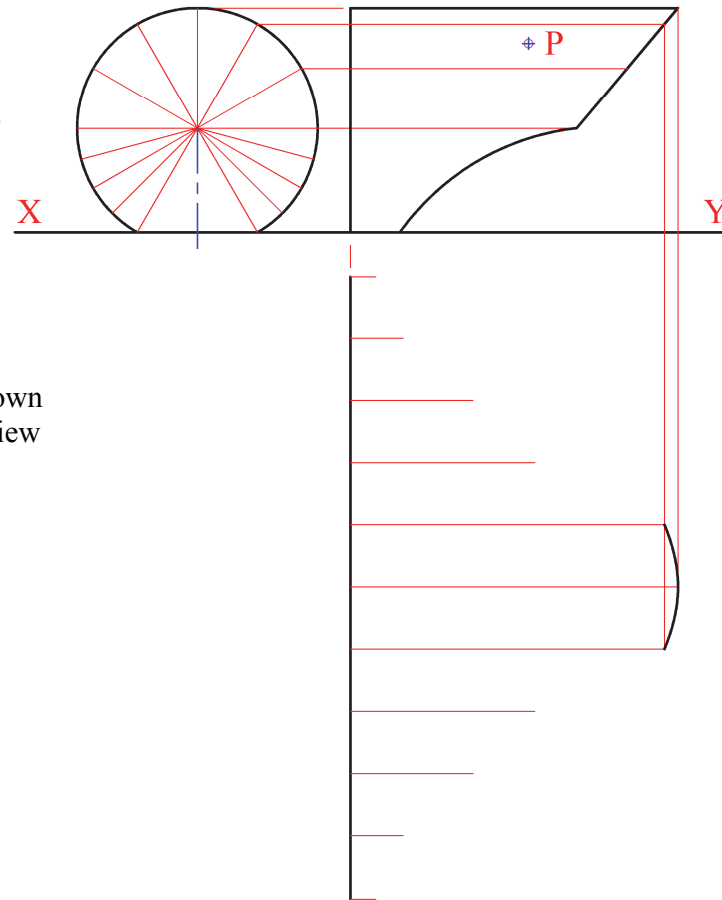
**SECTION A - Core - Answer any three of the questions on this A3 sheet.**

**A-1.** The images below show details of a curved metal shade from a set of traffic lights.

The shade is based on a cylinder which is truncated and shaped as shown.

The drawing shows the circular end view and the elevation of the shade. The incomplete surface development of the shade has been projected beneath the elevation.

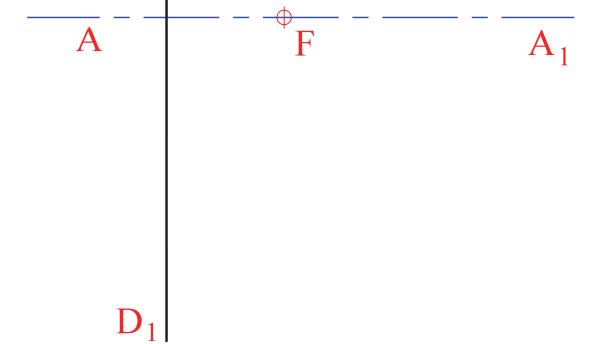
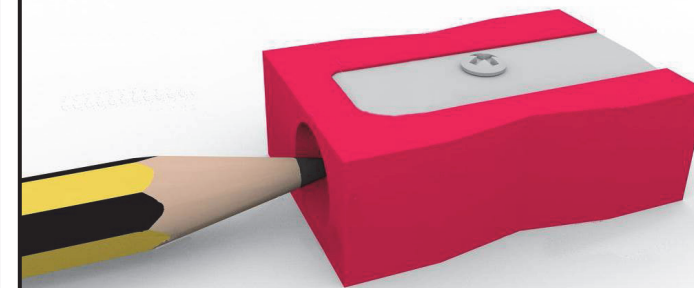
- (a) Complete the surface development.
- (b) A point **P**, on the surface of the cylinder, is shown in the elevation. Locate this point in the end view and on the surface development.



**A-3.** The 3D graphic below shows a pencil in the form of a regular prism. When a conical top is applied to the pencil by the sharpener it results in a series of hyperbolic curves near the top of the pencil as shown.

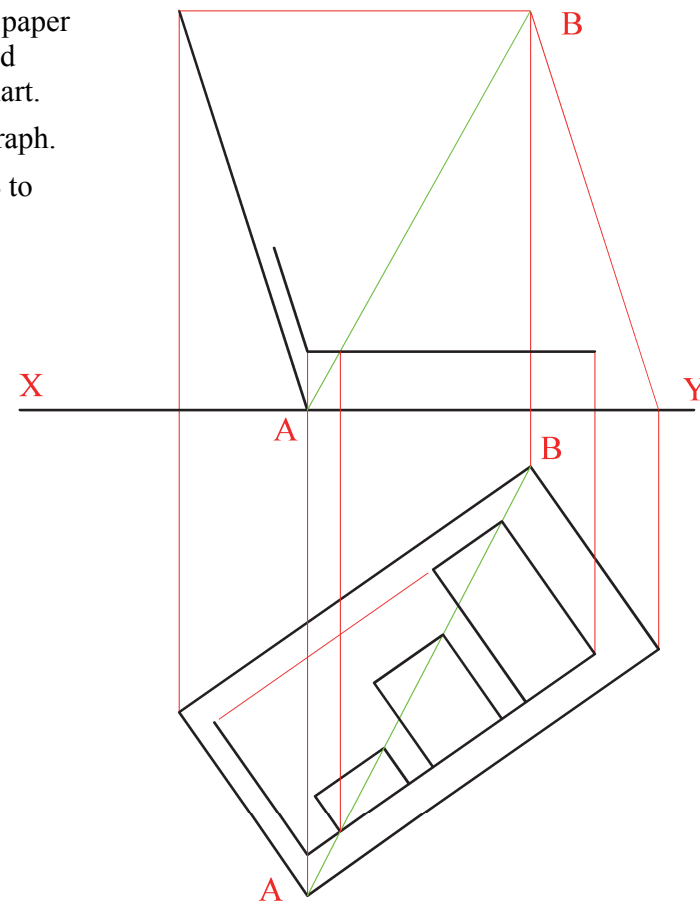
The drawing on the right shows the axis  $AA_1$ , the directrix  $DD_1$  and a focus **F** for one such hyperbola. The hyperbola has an eccentricity of 3:2.

- (a) Locate the position of the vertex and draw a portion of the hyperbola. (Note: It is only necessary to draw one branch of the hyperbola.)
- (b) Locate a point **P** on the curve which is 60mm from the focus and construct a tangent to the curve at point **P**.



**A-2.** The image below shows a bar graph presentation on a paper flip chart. The drawing on the right shows the plan and incomplete elevation of a similar bar graph and flip chart.

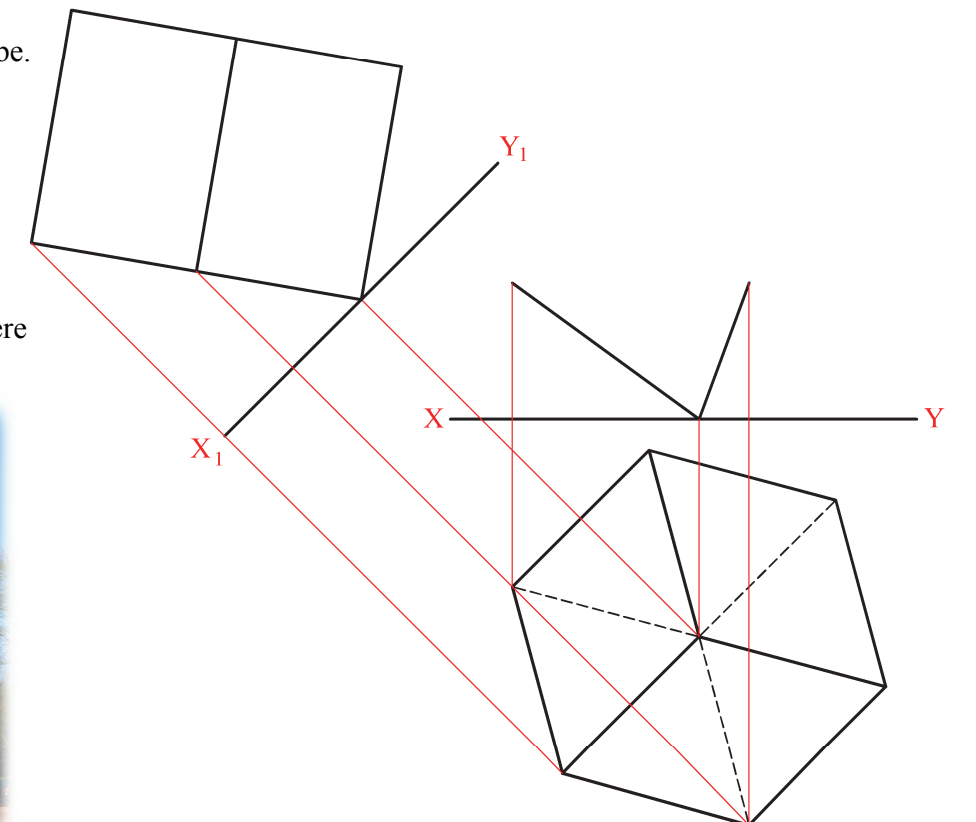
- (a) Complete the elevation of the flip chart and bar graph.
- (b) Determine the true inclination of the diagonal **AB** to the horizontal plane.



**A-4.** The image below shows the Atomium structure, in Brussels, which is based on an inclined cube.

The drawing on the right shows the incomplete projections of a similar inclined cube.

- (a) Complete the elevation of the cube.
- (b) Draw the plan and elevation of the smallest possible sphere that would contain the cube.



This Contour Map is part of Section C and should only be used for the answering of the Geologic Geometry Option (Question C-1).  
(Scale 1:100)

