Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Number of seat

Date of birth

Day

Month

Year

Scottish candidate number

Total marks 70

Attempt ALL questions.

Write your answers clearly in the spaces provided in this booklet. Additional space for answers is provided at the end of this booklet. If you use this space you must clearly identify the question number you are attempting.

All dimensions are in mm.

All technical sketches and drawings use third angle projection.

You may use rulers, compasses or trammels for measuring.

In all questions you may use sketches and annotations to support your answer if you wish.

Use blue or black ink.

Before leaving the examination room you must give this booklet to the Invigilator; if you do not, you may lose all the marks for this paper.
1. (a) State the Illustration and Presentation terms described below

(i) A colour gradually blending into another colour
   Term ________________________________  1

(ii) An area of white to show reflected light
   Term ________________________________  1

(b) Describe **tonal scale**. You may use a sketch to aid your answer

(c) Layering is a feature available in some CAD packages.
   State two advantages that could be gained when using this feature.
   
   Advantage 1  1

   Advantage 2  1
2. (a) State the two types of dimensioning shown below at A and B

Type A __________________________

Type B __________________________

(b) In order to manufacture the component, accurate functional tolerances will have to be applied. Explain why type A would be preferable.

(b) Sketch on the elevation below, to British Standards convention:

(i) the 4 dimensions shown on the pictorial view

(ii) the flat surface
3. An outline for a dog's play toy is shown below. It has been drawn using traditional methods, on the drawing board using the principles of tangency. Construction lines are also shown.

(a) An ellipse is shown at X.

What are the full dimensions for the major and minor axis?

Major axis _________________

Minor axis _________________

1
3. (continued)

(b) Find the radius shown at curve 1, 2 and 3.

<table>
<thead>
<tr>
<th>Curve</th>
<th>Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

(c) The drawing is shown below incomplete. Describe, making reference to other points of the drawing, how the centre point of curve 4 could be found.
4.

(a) State the type of section produced by the three cutting planes shown below

(i) ______________ (ii) ________________ (iii)______________

(d) Explain the purpose of producing a section drawing.
5. The sketches below were used by a CAD technician to create a 3D model of a sports bottle handle. The 3D model will be used to make production drawings and a promotional illustration.

The CAD technician sketched a modelling plan before creating the 3D model. The two stages are shown below and right.

(a) At stage one the CAD technician had to ensure correct positioning of the drawing to the work planes and the origin.

Describe the 3D modelling technique proposed at stage 1 making specific reference to work planes and origin. Make reference to all relevant dimensions from the orthographic sketch.
(b) At stage two the CAD technician created the curve of the handle.

Describe the 3D modelling technique proposed at stage 2 making specific reference to work planes and origin.

Make reference to all relevant dimensions from the orthographic sketch.

(c) The company are going to use this handle as standard on all of the new bottle designs. Explain why this component would be stored in a CAD library.
The two component parts of the sports bottle need to be assembled within the CAD software.

(d) Outline the 3D modelling techniques used to fully constrain the two component parts. You may use annotated sketches to support your answer if you wish.
5. (continued)

PLAN

PART ELEVATION

M35 X 1.5

3MM PITCH SIZE

DETAIL B

DETAIL B
5. (continued)
The bottle design requires a lid to be attached to complete the product.

(e) The lid requires a helical sweep in order to fit to the bottle properly. When modelling a helical sweep the pitch, Crest and Root are all important features.
Describe what the term pitch means in reference to a thread. You can use a sketch to assist you.

(f) The sizes of the bottle can be found sketched on the production drawings and shown on the 3D model on the left.

Design a suitable lid and produce a modelling plan which could be used to create a 3D CAD model of a simple lid to fit the bottle. The lid will screw onto the bottle. You can sketch, annotate, and/or use text in your answer.
5. (continued)

Throughout the design process the company shared this model with various people.

(g) A second CAD technician was sent the model to try and make the modelling process quicker.

Explain two disadvantages that may be encountered when two people work on the same project.

(h) An illustration specialist will work on creating a professional render. They will not need to edit the drawing model. State a suitable file format for the CAD drawing to be exported to before being shared.

(i) Before the bottle could go into production final changes had to be made with regard to sizes and positioning of work planes.

State the name of the 3D modelling feature which shows all previous work undertaken and allows you to make edits.
6. Kallo an organic food company, has produced some promotional displays to promote a food product as shown on Layouts A, B, C and D.

Layout A

Layout B
6. (continued)

Layout C

Layout D
6. (a) (continued)
Choose one of the layouts A, B, C or D and describe how colour has been used effectively to promote both the organic food product and also the Kallo brand.

(b) Describe how dominance and balance have been used to effectively promote the product within one layout.
6. (c) (continued)

Brand identity has been maintained on the design of the Packaging throughout the range of the products. Describe, with reference to the following design elements and principles how brand identity has been maintained. Reference should be made to three Packaging examples seen within layouts A, B, C and D.

Alignment

Unity / Proximity

Value

Page sixteen
6. (d) (continued)

(i) The client (Kallo) has asked the graphic artist to create a Vector image of the packing. State two reasons why this would be an advantage

Reason 1

__________________________________________________________________________ 1

__________________________________________________________________________

Reason 2

__________________________________________________________________________ 1

__________________________________________________________________________

The artwork featured on each package / layout was created by an artist using traditional manual methods.

(ii) Describe how the hardcopy/original of this artwork could be captured and used in the DTP software.
6. (d) (continued)

Kallo is a company who wish to promote the environmental credentials of their company.

(iv) State two ways in which they can reduce the environmental impact when **printing** their packaging.
7. Use the two layouts in the Question 7 supplement provided to answer this question.

Two promotional layouts for “Paolo Nutini”, 2014 gig advertisement are shown. Layout A is the earlier version, used in May and Layout B is the improved version used in October.

The layouts are aimed at a target market of 15 - 25 years, both male and female music fans.

The graphic designer has used a range of design elements and principles in each of the three layouts to appeal to the target market.

a) Explain two reasons why a Sans Serif typeface has been used throughout both layouts.

b) Select one of the layouts. Identify an example of contrast and explain the effect this contrast has on the layout.

In layout __________ a contrasting element is ____________________

The effect this contrast has on the layout is:
(c) Before sending to the printers, a pre-press copy was produced.

(i) Explain what the term pre-press copy means.

Examine the feature shown below.

(ii) State the name of this feature which is in each corner of layout B.

(iii) Explain the purpose of this feature.
7. (continued)

Examine both layout A and layout B.
Three DTP improvements have been made from layout A to layout B.

(d) Identify what these improvements are and explain their impact.

(i) Layout improvement 1 is:

and the impact is:

(ii) Layout improvement 2 is:

and the impact is:

(iii) Layout improvement 3 is:

and the impact is:

[END OF PRELIM QUESTION PAPER]
PAOLO NUTINI

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Wed 28 BRIDLINGHAM SPA  Mon 2 NORWICH UEA
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