



2010 Graphic Communication

Advanced Higher

Finalised Marking Instructions

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1. Please refer to the Leaflet for use with Question 1.

Design Elements and Design Principles should be considered when producing a page layout. With reference to the leaflet for use with **Question 1**, select **two Design Elements** and **two Design Principles**. Identify and describe how each contributes and makes an impact for the given page.

Design Elements

Line
Colour
Shape
Size
Value
Mass/Weight
Texture

Design Principles

Balance
Contrast
Proportion
Proximity/Unity
White space
Rhythm
Alignment

2 marks each element and principle for good explanation – must relate to the given page

1 mark for correctly identifying Element or Principle

1 mark for a good related explanation

(8)

2. A page layout is shown below.

In the space provided, name the Desktop publishing features identified (A to F).

GARDENS

INSPIRED IDEAS

CHRISTMAS ROSE OFFER
Helleborus Niger, commonly known as Christmas Rose, is a wonderful, often pink flushed, white bowl shaped flower, which will create some sparkle in the winter garden. You can buy five bare-root plants for just £7.95, or alternatively, purchase 15 for just £15.90 - saving £7.95. For healthy bare-root plants within 28 days, subject to lifting conditions, call 0871 521 1660* or send a cheque made payable to Express Newspapers, to Express Hellebore Offer, Eastfields Nursery, EXSA221207, Rookery Farm, Jovs Bank, Holbeach St Johns, Spalding, PE12 8SG.

WALK OFF YOUR CHRISTMAS PUD
 Blenheim Palace in Oxfordshire is set in over 2,000 acres of stunning parkland designed by the renowned 18th-century landscaper Lancelot 'Capability' Brown. It's the perfect place to walk off your Christmas pudding and open daily from 9am (last admission 4.45pm or dusk), except Christmas Day. If you get peckish, the Pleasure Gardens Café is open from 10.30am until 3.30pm. Call 0800 602080 or visit www.blenheimpalace.com.

FROM LITTLE ACORNS...
 This unique gift of a live English oak, in a clear tube ready for planting, is definitely one for those with a big garden. Costing just £6.99 from The Kats Pyjamas, (01442 804466; www.thekatspyjamas.com) the tree has an expected growth rate of 0.5m per year and will also help to reduce the effects of global warming.

top tip For an eco-friendly Christmas, why not create a tree from trimmings from overgrown shrubs such as white willow, witch elm or bird cherry then place it in a bucket of sand and decorate it with lots of festive sparkles.

Alan Titchmarsh
 Gardens are a great source of decorations. With spray paint and a little artistic flair, you could even recreate Jack Frost's magic indoors

A touch of frost

I'm sure your Christmas tree is standing majestically, glistening with baubles and tinsel with a fairy sitting precariously on top. Lovely! But don't overlook other decorations you can bring in from the garden. The place where they can really make a difference is on the dining table. Today, few of us have a dedicated dining room as we tend to eat in the kitchen but, even so, wherever your table is situated, and whether it is polished mahogany, stripped pine or wipe-clean Formica, there is a good excuse at this time of year to make it look a bit special. When we were kids we used to paint leafless silver birch or hazel twigs with gold or silver paint and hang baubles from them, and there's no reason why you shouldn't still do so today. Cut bare twigs and branches now - 2 or 3ft long - and bring them indoors to dry for a day before you spray paint them gold, or silver or white 'frost'. Spray cans make the job easy, but for preference, do the job outside!

Right: *Cotoneaster lacteus* could bring some Christmas cheer to your home

The stems can be arranged in an ordinary vase, but I've managed to find a couple of really tall specimen vases in my local florist's shop. They are around 18in high, which means that they can be placed down the centre of the table and the twigs arranged in them so that they tower over the proceedings without making a screen. There's nothing worse than a flower arrangement you can't see through on a table - it's a real conversation killer. The specimen vases are heavy enough to make them stable, and my plan is to spray the birch stems silver, then tie small silver bows on them and find clear plastic 'icicles' to hang from them. The family always jokes about the Christmas table I decorated a few years ago. I bought two small nets of satsumas and half a dozen bags of mixed shell-on nuts, emptied the lot out and arranged them in a river down the middle of the table. With brass candlesticks pushed in among them, I had a table decoration to make Elizabeth I proud!

So go for it this Christmas and make sure your table is fit for a King - or Queen. He or she may not turn up, but you'll have a right royal time of it. From me and mine to you and yours, a very Happy Christmas! Don't miss Alan's gardening column today and every day in the Daily Express. For more information on his range of gardening products visit www.alantitchmarsh.com.

Daily Express Saturday Magazine **77**

- A Text Runaround/Text Wrap
- B Sub-headline
- C Bleed
- D Footer
- E Caption
- F Headline

1 mark for correct answer A to F
 Total = 6 marks
 No ½ marks

(6)

3. Describe the printing process terms below.

(a) (i) **Spot Colour**

The printing of given elements – text or graphics – in a solid colour of ink different from that of the main text which would normally be printed in black.

1

(ii) **CMYK**

Cyan, Magenta, Yellow and Key (Black) make up the abbreviation CYMK. There is only a need for 3 colours in printing but for definition black is added to achieve this.

1

(iii) **Camera-ready copy**

Fully prepared page(s) of text and graphics ready for photographing for reproduction by a conventional printing process, eg offset lithography.

1 mark for a good description.

1

(b) Explain the purpose of **registration marks** during a printing process.

Registration marks are crosses placed at the corners of the image. When setting up printing of a document these must be perfectly aligned to make sure that the colours sit correctly on top of each other.

1 mark for the crosses mentioned and 1 mark for why they are needed.

2

No ½ marks

(5)

4. When handling graphics, Vector and Bitmap images are used.

- (a) Describe, with the aid of sketches, the difference between a Vector and a Bitmap image.

Vector

Made up of individual scalable objects, which are defined by mathematical equations, which allows them to render at the highest quality. Objects may consist of lines, curves and shapes with editable attributes such as colour, fill and outline. An object can be modified by shaping and transforming using nodes and handles.

Bitmap

Also known as raster images. Made up of pixels in a grid. Each pixel contains specific colour information. A pixel is minutely small, a single image may be composed of thousands of individual pixels. These pixels are only clearly and individually visible when the image is magnified

2 Marks - Any 2 points from above + accept appropriate sketches

2

- (b) Explain **two** advantages a Vector image has in comparison to a Bitmap image.

Vector images can be scaled, skewed, stretched without losing their quality. A Vector image can also be manipulated without losing its quality. The same can not be said of Bitmap, which, when scaled will lose its original map of bits.

Vector image:

- Scalable.
- Has no background.
- Resolution independent.
- Unsuitable for photo realistic images.

Bitmap image:

- Restricted to rectangle.
- Quality is reduced when resized.
- Made up of pixels in a grid.
- Resolution dependent.
- Minimal support for transparency.

2 Marks - Any 2 points from above

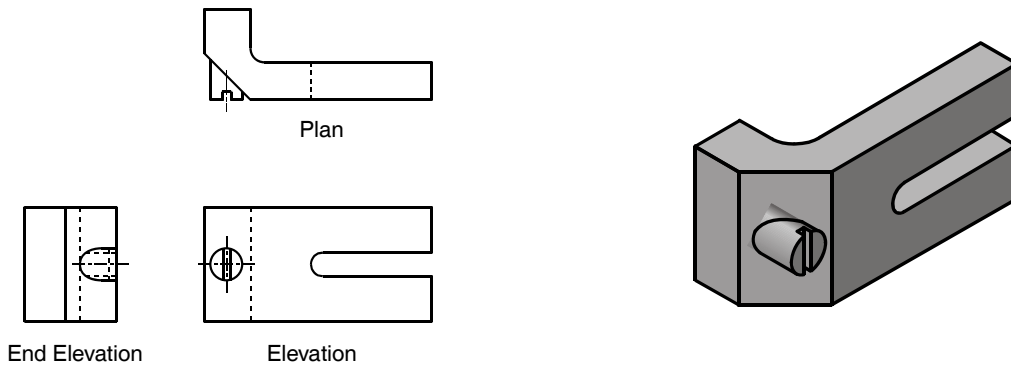
No ½ marks

2

(4)

5. Orthographic views of a drawing board bracket are given.

With the aid of sketches, explain how a 3D solid model of the bracket can be produced.



Explaining, in the correct way the 3D modelling terms that are needed to model the bracket.

- Extrude of shape* 1 mark
- Left slot subtraction/cut extrude* 1 mark
- Cylinder addition/union/extrude* 1 mark
- Right slot subtraction/cut extrude* 1 mark
- Sketches* 1 mark
- Use of editing commands (fillet/chamfer)*

No 1/2 marks

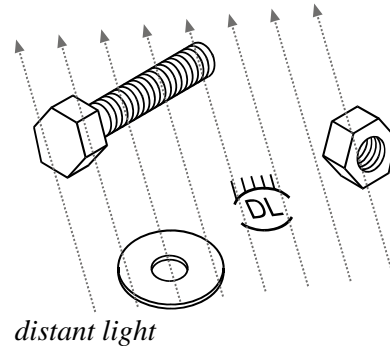
(5)

6. In computer-aided 3D modelling, lights are used to enhance a rendered image.

(a) Describe the effects on a 3D CAD model of the following lighting types.

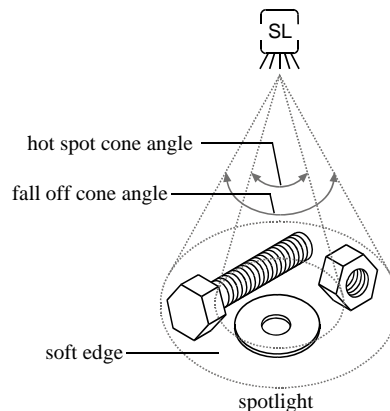
(i) **Distant**

A distant light emits uniform parallel light rays in one direction only. Light rays extend infinitely on either side of the point you specify as the light source. The intensity of distant light does not diminish over distance; it is as bright at each face it strikes as it is at the source. The direction of a distant light in a drawing is more critical than its location. All the objects are lighted, including any “behind” the light. A distant light acts as if it is outside the drawing. Distant lights are useful for lighting objects or a backdrop uniformly and for simulating sunlight. A single distant light simulates the sun.



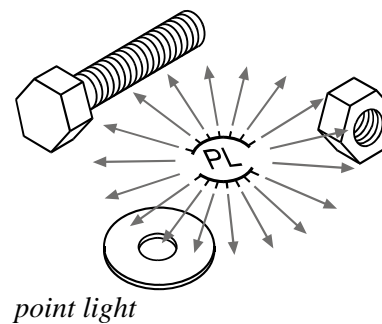
(ii) **Spot**

A spotlight emits a directional cone of light. The direction of the light and the size of the cone can be specified. Like that of point lights, the intensity of spotlights diminishes over distance. Spotlights have hotspot and falloff angles that together specify how light diminishes along the edge of the cone. When light from a spotlight falls on a surface, the area of maximum illumination is surrounded by an area of lesser intensity.



(iii) **Point**

A point light radiates light in all directions from its location. The intensity of a point light diminishes over distance according to its rate of attenuation. A point light is useful for simulating light from a light bulb. Used for general lighting effects. Point lights are an alternative to ambient light for providing fill in a localised area.



1 mark for explanation

3

(b) The following terms are associated with lighting. Explain these terms.

(i) **Ambient**

Light that provides a constant illumination to every surface in a model is ambient light; it comes from no particular source and has no direction.

(ii) **Intensity**

Using the Intensity Slider, set a light intensity appropriate to the type of light and the conditions you're trying to simulate. (A value of zero turns a light off).

High intensity – bright light

Low intensity – dim light

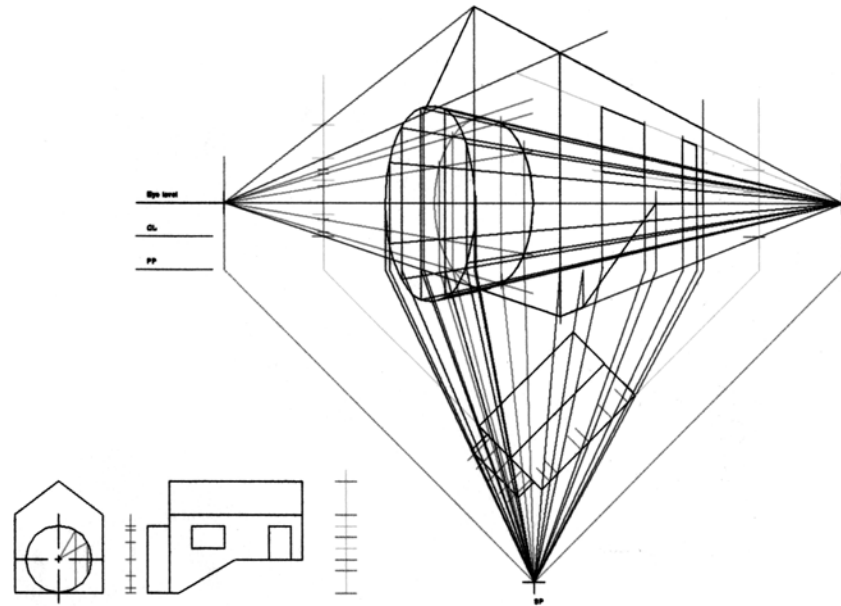
1 mark for each explanation

2
(5)

7. Measured Perspective – Watermill (16 marks)

- (a) Location of V1 & V2 (both for 1) 1
- (b) VP1 + VP2 (both for 1) 1
- (c) Height line (H1) 1
- (d) Construction on elevation and end elevation 1
- (e) Water wheel (full circle) 3
12 = 3, 9-11 = 2, 6-8 = 1
- (f) Part water wheel (part circle) 2
2 = 6-7, 1 = 4-5
- (g) Smooth curve 1
Good = 1
- (h) House walls and roof 2
2 = 7-9, 1 = 4-6
- (i) Window and door 2
2 = 7-9, 1 = 4-6
- (j) Canopy 2
2 = 7-8, 1 = 4-6

Total 16



8. Interpenetrating pipes (16 marks)

End Elevation

- (a) Construction on elevation 1
- (b) Construction on end elevation 1
- (c) Cylinder top (12 points) 2
11-12 = 2, 8-10 = 1

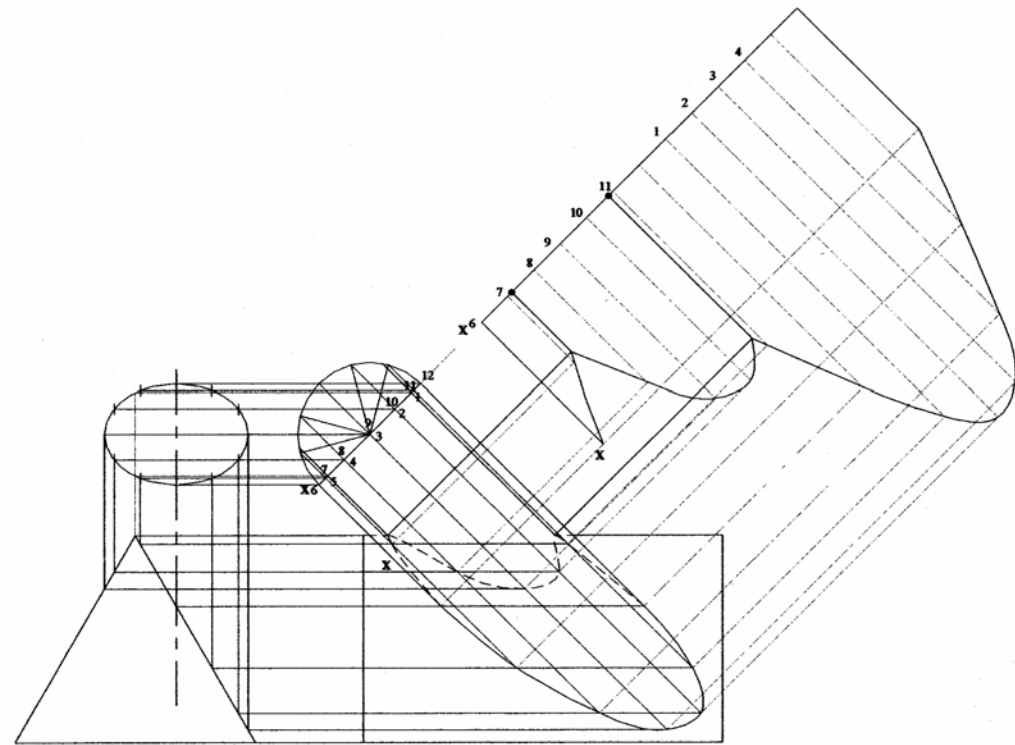
Elevation

- (d) Front detail – 7 points 2
6-7 = 2, 4-5 = 1
- (e) Back curve (hidden) – 7 points 2
6-7 = 2, 4-5 = 1
- (f) 2 horizontal (hidden), hidden curve and 2 solid angular lines 1
3-5 = 1

Development

- (g) Panel length 12 segments 1
- (h) True lengths projected from elevation 1
- (i) 13 points 3
11-13 = 3, 8-10 = 2, 5-7 = 1
- (j) Two extra points (both needed) 1
- (k) Perimeter (3 lines) + Curve 1
3-4 = 1

Total 16



9. Cone (15 marks)

End Elevation

- (a) Curve – base (11 points/curve + straight) 2
10-12 = 2, 7-9 = 1
- (b) Curve – Face X (12 points) 2
11-12 = 2, 8-10 = 1
- (c) Curve – Face Y (5 points) 1
3-5 = 1
- (d) Ellipse outlines (curves × 3) 1
2-3 = 1

Development

- (e) Development 6 segments 1
7 points = 1
- (f) Bottom curves – base (7 points + 1 extra) 2
7-8 = 2, 5-6 = 1
- (g) Top Curve (7 points) 1
5-7 = 1
- (h) Outline three curves and + edge (AA) 1
3-4 = 1

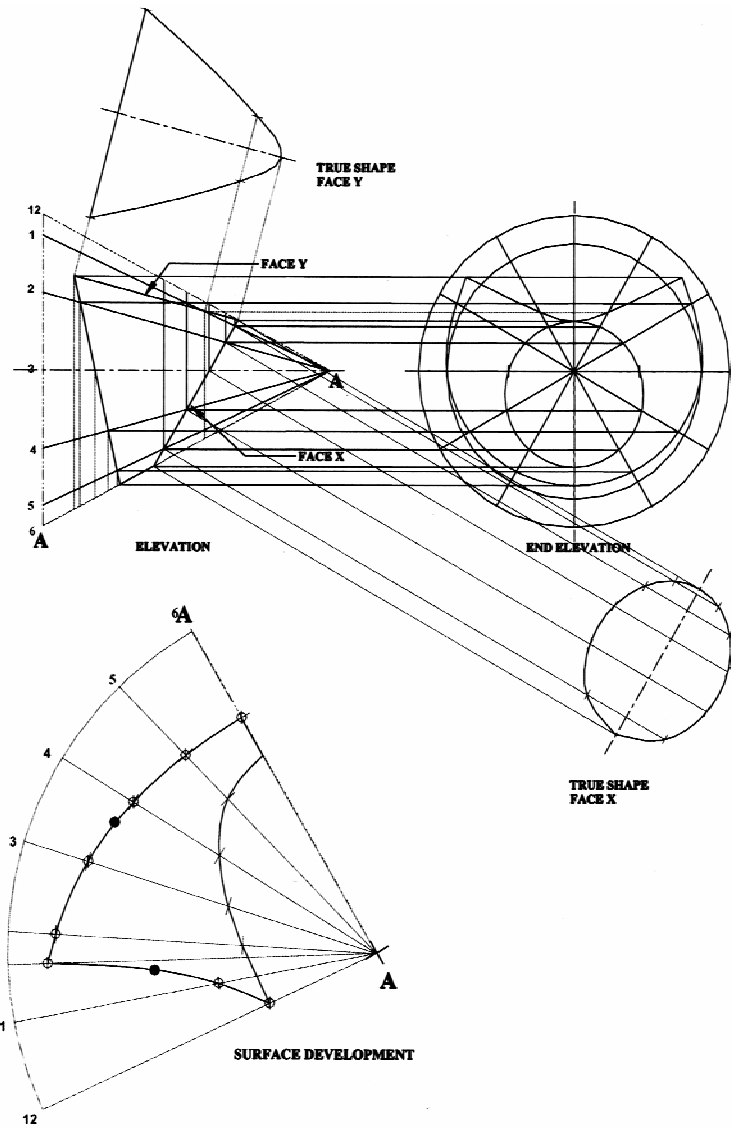
True shape Face X

- (i) Curve (12 points) 2
10-12 = 2, 7-9 = 1

True shape Face Y

- (j) Curve (5 points) + outline 2
6 = 2, 4-5 = 1

Total 15



[END OF MARKING INSTRUCTIONS]