FOR OFFICIAL USE

National Qualifications 2025

Mark

X835/77/01 Graphic Communication

WEDNESDAY, 30 APRIL

1:00 PM – 3:30 PM

X8357701

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 — 90

Attempt ALL questions.

You may use a calculator.

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.

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.

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.

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X835770101

Total marks — 90

Attempt ALL questions

Refer to supplementary sheet 1 for use with question 1.

1. A webpage for a bike company is shown on **supplementary sheet 1**.

(a) Describe four design elements or principles that have been used to make the webpage **easy to navigate**.

Do not repeat any design element or principle.

Do not refer to dynamic effects in your answer. **4**

1. **(continued)**

Jpg images were used for the background of the webpage.

Image 1

Image 2

(b) Explain, giving two reasons, why the jpg file type was used. **2**

(c) Describe how the use of depth of field and rule of thirds have enhanced the visual impact of images 1 and 2. **2**

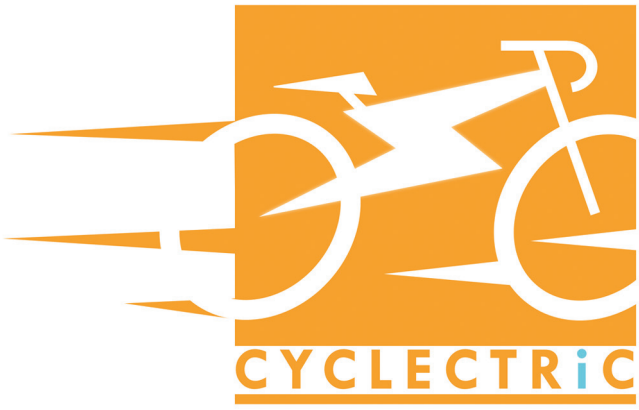
[Turn over

1. **(continued)**

The company website allows users to customise bikes using vrml.

(d) Describe, giving two examples, how the vrml file format supports bike customisation. **2**

The company logo is shown below.



(e) Describe, giving two examples, how dynamic effects have been used in the logo. **2**

1. (continued)

The company logo will be reproduced on both digital and printed media.

(f) Describe four considerations with replicating the logo across both digital and printed media. **4**

(g) Explain, giving two reasons, why digital rights management is important for the company. **2**

[Turn over

2. Animation techniques are used in the production of animated movies.

(a) Describe two advantages and two disadvantages of using motion capture technology. **4**

2. (continued)

MARKS DO NOT WRITE IN THIS MARGIN

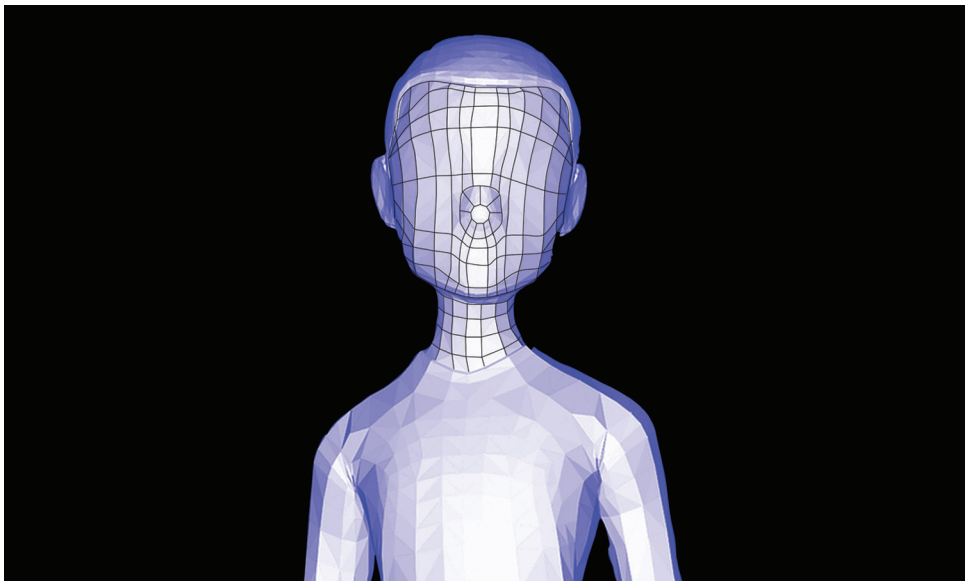
Illustration and lighting techniques are used in the production of animated movies and video games such as those shown below.

(b) Describe eight illustration and/or lighting techniques that can be used to add realism to animated movies or video games. **8**

2. (b) (continued)

2. (continued)

Freeform modelling is often used in the production of animated characters.



(c) Explain, giving two reasons, why freeform modelling is used to create animated characters. **2**

3. A dog treat toy is shown below.

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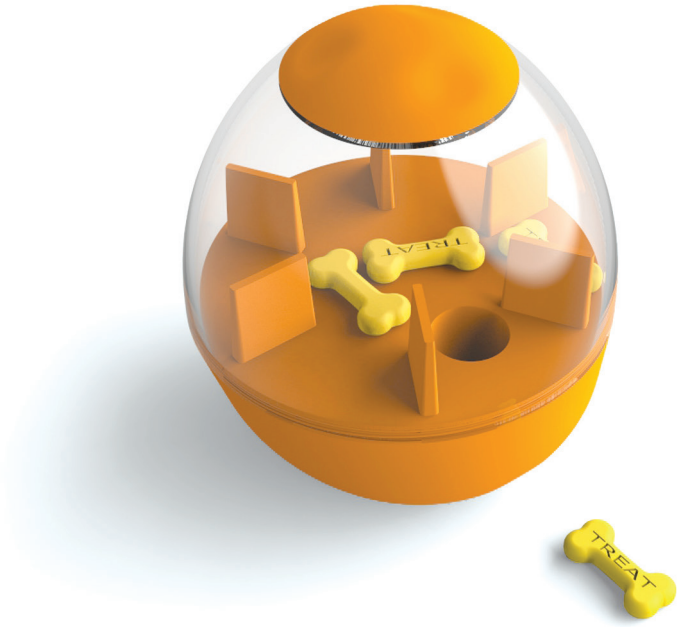
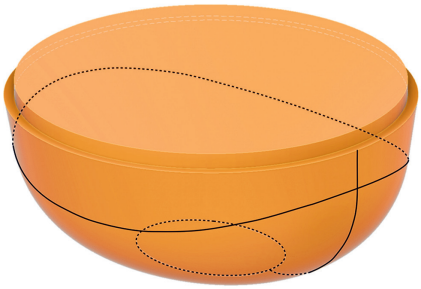


Refer to supplementary sheets 2 and 3 for use with question 3.

(a) Describe, using 3D CAD modelling techniques, how you would model component A shown on **supplementary sheet 2**.

You may use sketches and annotate the model images to support your answer.

(i) **Stage 1**	**4**



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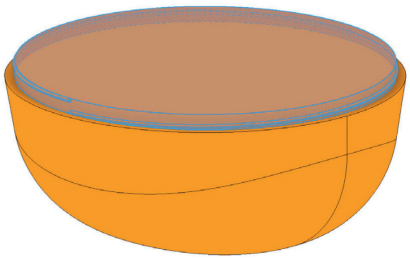
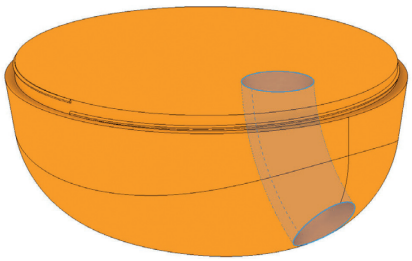
(ii) **Stage 2** — 2

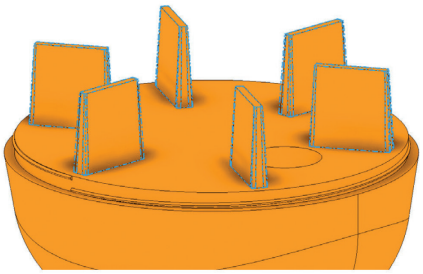


(iii) **Stage 3** — 2



3. (a) (continued)

(iv) **Stage 4** — **4**



3. (continued)

(b) Top-down modelling and surface modelling were used to create components B and C shown on **supplementary sheet 3**.

(i) Describe two ways top-down modelling was used to support the production of component B. **2**

(ii) Explain, giving two reasons, why surface modelling is a suitable modelling technique for component C. **2**

[Turn over

3. (continued)

(c) Identify and describe the purpose of symbols D and E shown on **supplementary sheet 2**. **4**

Tolerances were applied to the components.

(d) Describe the difference between tolerance F and tolerance G shown on **supplementary sheet 2**. **2**

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4. A design for a sustainable shopping bag made from canvas is shown below.

The logo on the bag is screen printed.

(a) Explain, giving three reasons, why screen printing is a suitable method for printing the logo. **3**

(b) Explain, giving three reasons, why the dwg file format is suitable for production of the logo. **3**

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The company have produced the digital advert shown below.

(c) Describe two advantages and two disadvantages for the environment of using digital advertisements. **4**

(d) Describe two ways the radial balance in the digital advertisement helps to emphasise the environmentally friendly message. **2**

[Turn over for next question

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5. The design of theme park rides such as rollercoasters requires the involvement of manufacturing and engineering professionals.

Refer to supplementary sheet 4 for use with question 5.

(a) Describe, with reference to the specification and images on **supplementary sheet 4**, how each of the following professionals will support the design of the rollercoaster:

(i) model maker _____ **2**

_____

_____

_____

_____

5. (a) (continued)

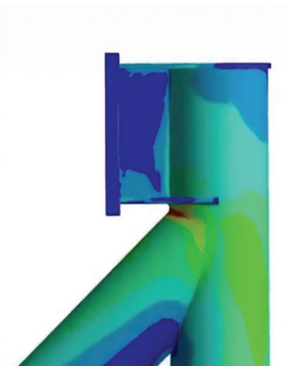
(ii) structural engineer _____ **2**

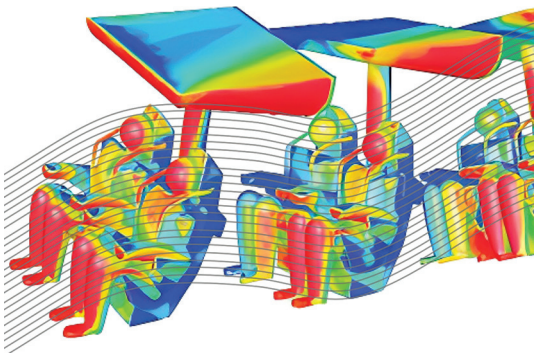
(iii) mechanical engineer _____ **2**

[Turn over

5. (continued)

FEA and CFD simulations for the rollercoaster are shown below.





(b) Describe two ways that FEA and two ways that CFD simulations could be used to support the design of the rollercoaster.

You must not repeat the responses you gave for question 5 (a). **4**

5. (continued)

(c) Explain why an underground survey is crucial for planning the rollercoaster construction. **2**

(d) Describe how a topographical survey could be used when planning the rollercoaster construction. **2**

[Turn over

6. A travel company is producing a series of retro posters to celebrate their upcoming anniversary event.

1 2 3 4

(a) To produce the graphics within each of the posters shown, a graphic designer used two methods.

- Method 1: Creating digital sketches and vectors before exporting the resulting images.
- Method 2: Sourcing and editing online photo library images.

(i) Describe two **advantages** of using method 1. **2**

(ii) Describe two **disadvantages** of using method 2. **2**

6. (continued)

(b) Describe, with reference to the relevant posters, two ways that silhouettes enhance the visual impact of the posters. **2**

To further promote the event, a series of social media adverts will be produced using the 3gp file format.

(c) Explain, giving two reasons, why 3gp is a suitable choice of file format. **2**

To ensure the production of the posters remained on track, the company and graphic designer created a Gantt chart.

(d) Describe two ways a Gantt chart would be used to ensure the project remains on track. **2**

[END OF QUESTION PAPER]

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Acknowledgement of copyright

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	Image 2: Have a nice day Photo/shutterstock.com
Question 2 (b)	Spiderman: Alexander Tolstykh/shutterstock.com
	Coco: Sarunyu L/shutterstock.com
Question 2 (c)	Image is taken from Pixabay, https://pixabay.com/vectors/man-geometric-polygons-low-poly-8016071/
Question 4	Image is taken from Pexels, www.pexels.com/photo/brown-bag-with-gray-handle-on-white-surface-12025443/
Question 4 (c)	Blue Corner Studio/shutterstock.com
Question 5	Image is taken from Pixabay, https://pixabay.com/photos/leisure-time-pleasure-dynamic-199229/
Question 5 (b)	FEA simulation: https://www.linkedin.com/posts/davide-mavillonio_fem-cfd-ansysugcPost-7082302878328995840-Wn4t/
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