

FOR OFFICIAL USE



National
Qualifications
2026

Mark

X835/77/01

Graphic Communication

MONDAY, 11 MAY

1:00 PM – 3:30 PM



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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.

Do not remove any exam materials. You must leave this booklet on your desk; if you do not, you could lose all the marks for this paper.



* X 8 3 5 7 7 0 1 0 1 *

**Qualifications
Scotland**
Teisteanasan Alba

Total marks — 90
Attempt ALL questions

1. A graphic designer developed the logo for a dog grooming company shown below.



Preliminary planning strategies were used to create the logo.



- (a) Explain, giving two reasons, why graphic designers use digital thumbnails like the ones shown above.

2

1. (continued)

The raster image of the dog in the logo was captured using a camera and then edited digitally using graphics software.

- (b) Describe two ways the graphic designer can convert the raster image of the dog into a vector graphic.

2

The logo will be used on printed and digital media.

- (c) Explain, giving two reasons, why colour space, text to vector and resolution are important considerations when producing the final logo.

- (i) Colour space _____ 2

- (ii) Text to vector _____ 2

[Turn over



1. (c) (continued)

(iii) Resolution _____ 2

(d) Explain, giving two reasons, why the company protects the rights to their graphics. 2



1. (continued)

A range of items produced by the company are shown below.



COMPANY FLYER



DEODORISER SPRAY

The company flyer was printed using four colour offset lithography.

- (e) Describe four setup requirements for four colour offset lithography that ensures the flyer is printed correctly.

4

[Turn over

1. (continued)

- (f) The logo on the deodoriser spray was vinyl cut using CAD/CAM and adhered to the bottle.

(i) Identify a suitable file type that could be used for vinyl cutting.

1

(ii) Explain, giving two reasons, why this file type is suitable for vinyl cutting.

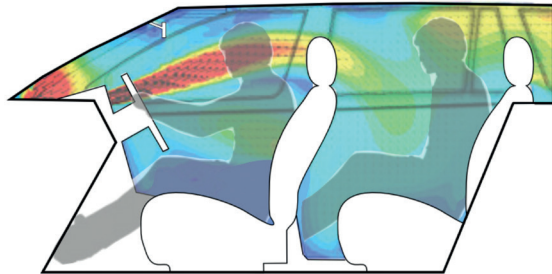
2

- (g) Describe two ways the company could reduce their environmental impact producing the flyer and deodoriser spray.

2



2. The car industry uses modelling, digital testing methods, simulations, and 3D graphics.



CFD test of a ventilation system



artist's impression of ventilation airflow

- (a) Describe three ways that CFD simulations can assist with the design of car ventilation systems.

3

[Turn over

2. (continued)

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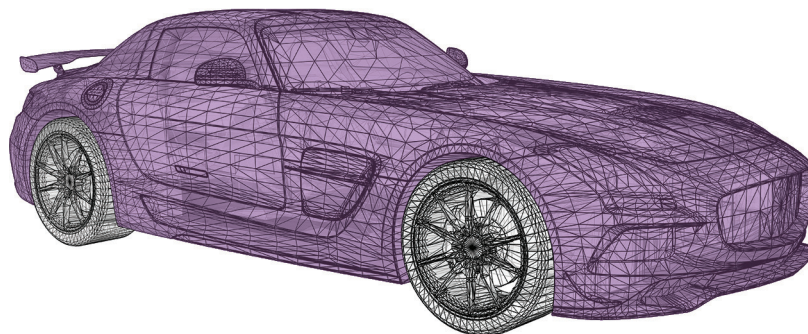
Digital simulations were used when designing the braking system.



- (b) Describe two ways the use of digital simulations can reduce the car industry's impact on the environment.

2

Polygons were used in the design of the car.



- (c) Describe two ways polygons were used in modelling the car body.

2



* X 8 3 5 7 7 0 1 0 8 *

2. (continued)

Refer to supplementary sheet 1 for use with question 2 (d).

A promotional CAD illustration of a car design is shown on **supplementary sheet 1**.

- (d) (i) Describe, with reference to the image shown on **supplementary sheet 1**, one way each of the following illustration techniques have been used:

3

Image Based Lighting (IBL) _____

Specularity _____

Lighting _____

Desktop publishing can be used to further enhance illustrations and CAD renders.

- (ii) Describe, with reference to the image shown on **supplementary sheet 1**, two ways dynamic effects have been used.

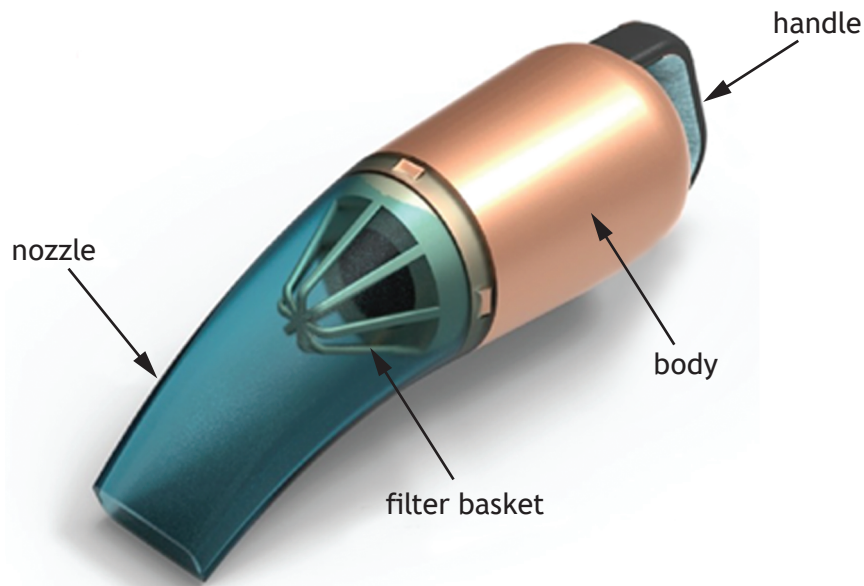
2

[Turn over



* X 8 3 5 7 7 0 1 0 9 *

3. The design for a handheld vacuum cleaner is shown below.



- (a) Describe the four stages you would carry out to create the handle using morphing (freeform modelling).

The images for each stage show what the component will look like at the end of the modelling stage.

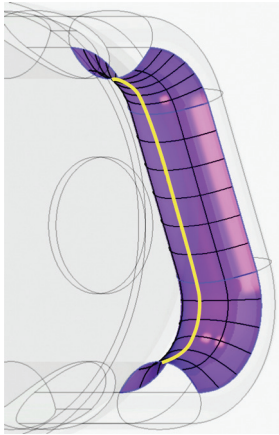
You may use sketches to support your answer.

4

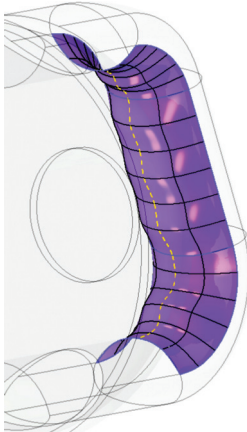
Stage 1	

3. (a) (continued)

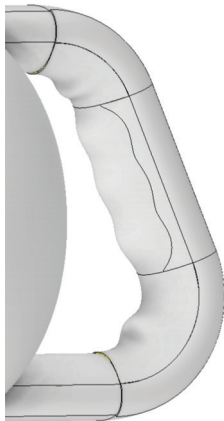
Stage 2



Stage 3



Stage 4



3. (continued)

The nozzle was created using a combination of surface and top-down solid modelling techniques.

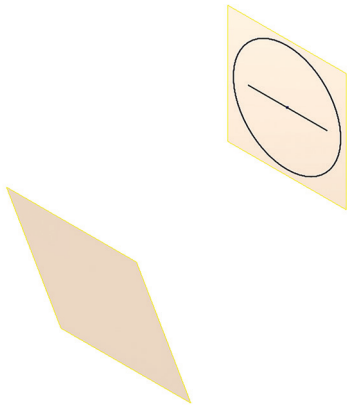
Refer to supplementary sheet 2 for use with question 3 (b).

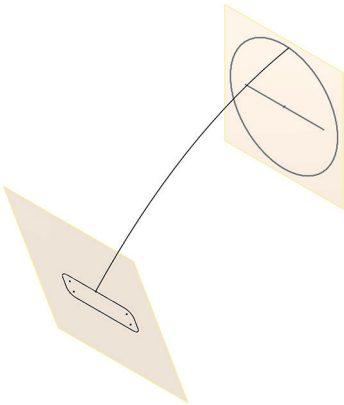
- (b) Describe, using 3D CAD modelling techniques, how you would model the nozzle. Refer to dimensions in your answer.

The images for each stage show what the component will look like at the end of the modelling stage.

You may use sketches to support your answer.

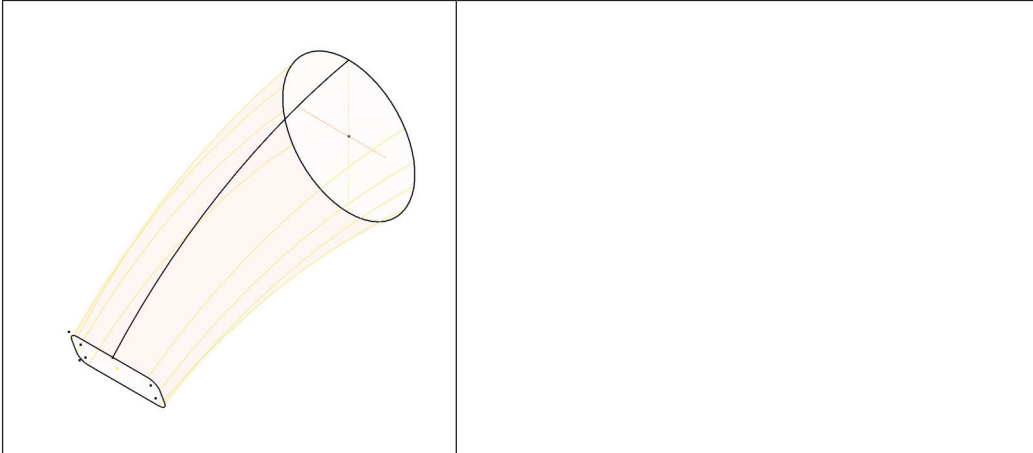
6

Stage 1	
	

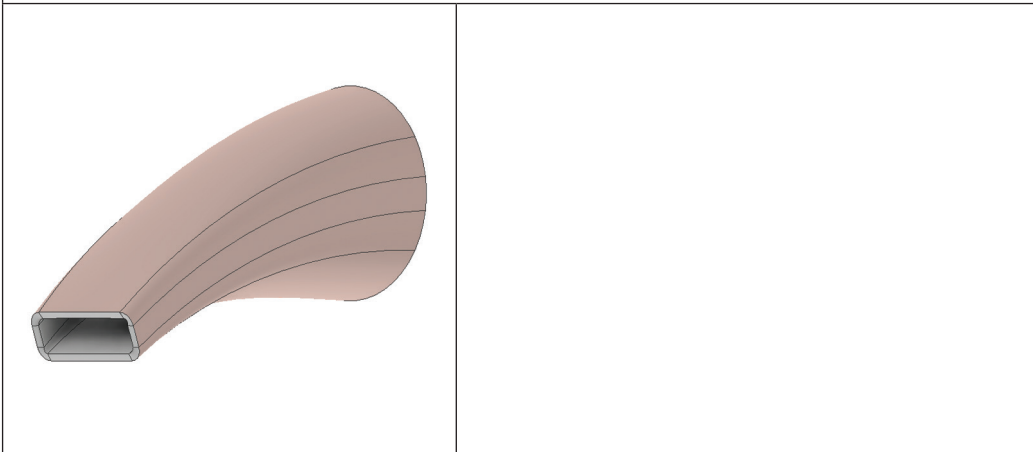
Stage 2	
	

3. (b) (continued)

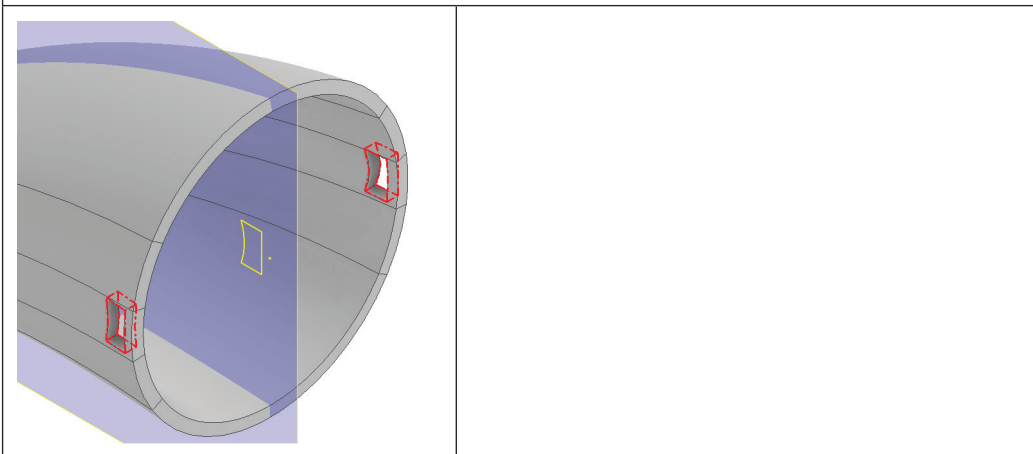
Stage 3



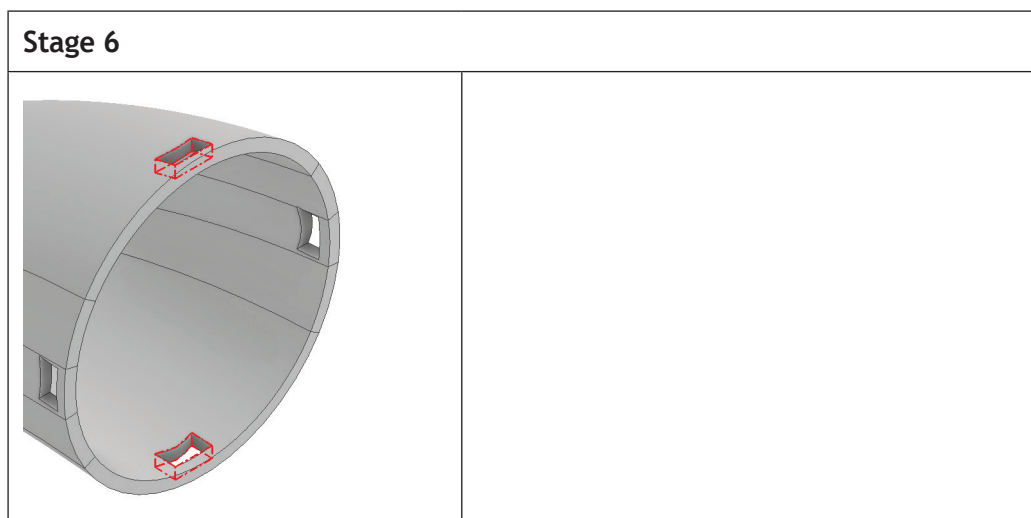
Stage 4



Stage 5



3. (b) (continued)



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3. (continued)

The filter basket was created using solid modelling techniques.

Refer to supplementary sheet 3 for use with question 3 (c).

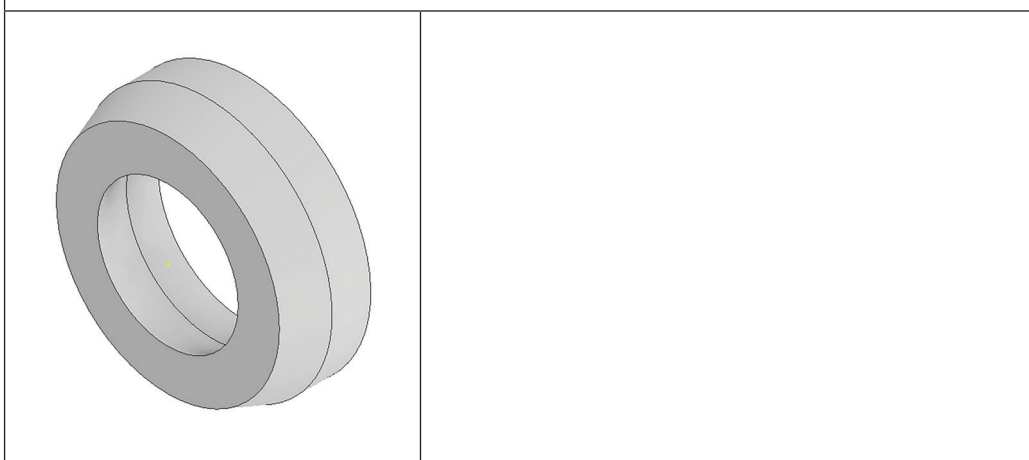
- (c) Describe, using 3D CAD modelling techniques, how you would model the filter basket. Refer to dimensions in your answer.

The images for each stage show what the component will look like at the end of the modelling stage.

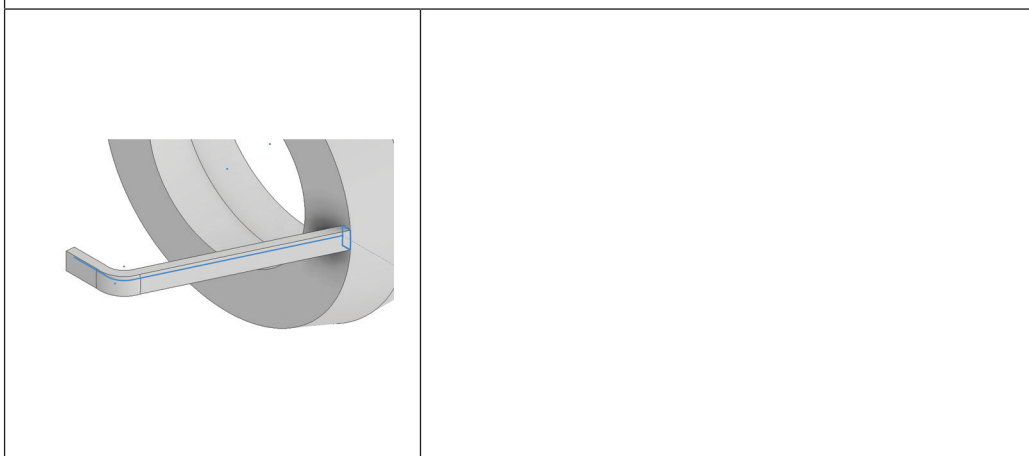
You may use sketches to support your answer.

6

Stage 1



Stage 2

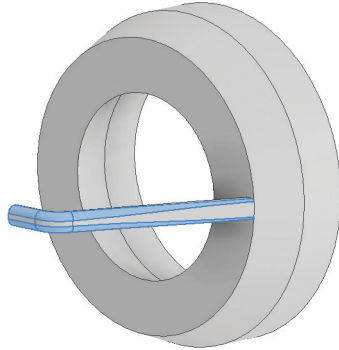


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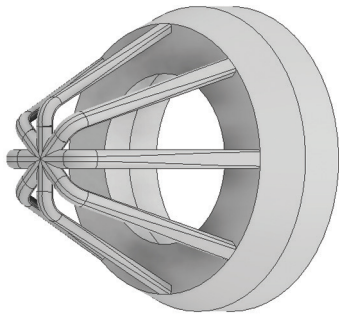


3. (c) (continued)

Stage 3



Stage 4



3. (continued)

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

- (d) Explain why symbols A to D are important for the manufacturer when manufacturing the handheld vacuum cleaner using CAD/CAM processes.

4

Symbol A _____

Symbol B _____

Symbol C _____

Symbol D _____

FEA testing will be carried out on the handheld vacuum cleaner.

- (e) Describe four setup requirements that ensure FEA tests can be carried out accurately.

4



4. Images of a building restoration project are shown below.



Town planners, conservation bodies and quantity surveyors were involved in planning the restoration project.

(a) Explain, giving two reasons, why each professional would be required.

(i) Town planners _____ 2

(ii) Conservation bodies _____ 2

(iii) Quantity surveyor _____ 2

4. (continued)

Underground, drainage and feature surveys were required for the success of the restoration project.

(b) Explain, giving two reasons, why each survey would be required.

(i) Underground survey _____ 2

(ii) Drainage survey _____ 2

(iii) Feature survey _____ 2

[Turn over



4. (continued)

The restored building was turned into a range of luxury apartments.



LUXURY APARTMENT ILLUSTRATION

- (c) Describe two ways an interior designer would be involved in the design of luxury apartments.

2

4. (continued)

Companies use VRML tours to sell properties.



(d) Describe three advantages for society moving to digital systems such as VRML. **3**

[Turn over

- Their current project focuses on motion tweening animations that educate children on how to play different sports and games.

The collage consists of 24 illustrations arranged in three rows and two columns. The top row (8 illustrations) shows a golfer in a white shirt and black shorts swinging a golf club. The middle row (8 illustrations) shows a soccer player in a yellow shirt and black shorts kicking a soccer ball. The bottom row (8 illustrations) shows a basketball player in a yellow shirt and black shorts shooting a basketball. The right side (8 illustrations) shows a sequence of a person in a blue shirt and black pants performing a sit-up.

- 8

[illegible]

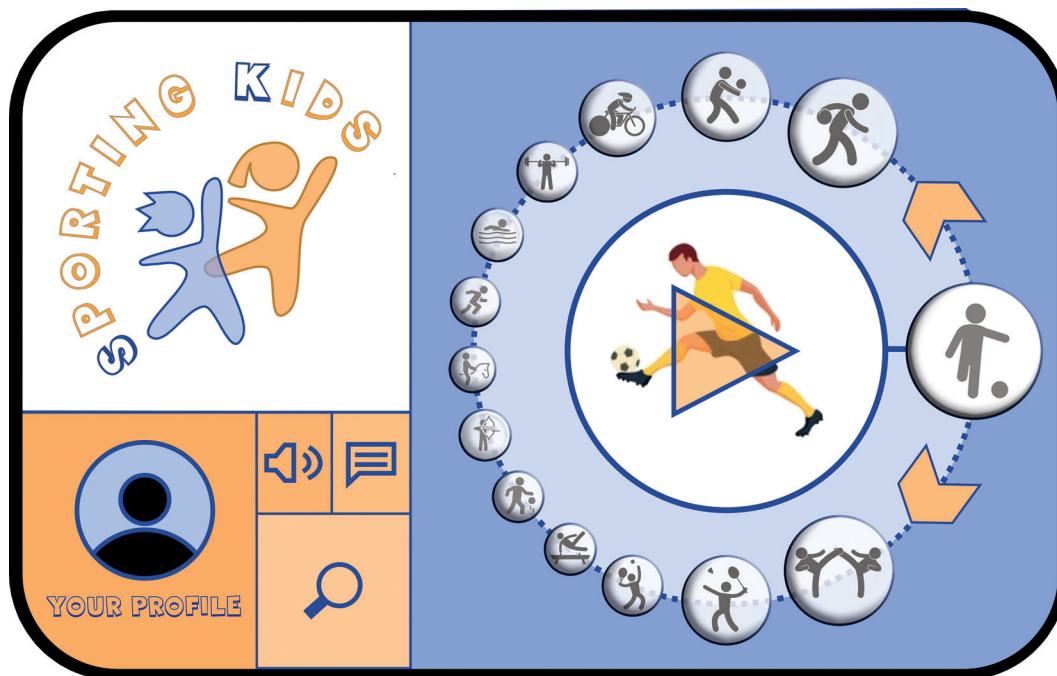
5. (a) (continued)

[Turn over



5. (continued)

The animations will be launched via an online app. The home screen from the app is shown below.



APP HOME SCREEN WITH SCROLLABLE NAVIGATION WHEEL

- (b) Describe, giving two reasons for each, how silhouettes and pace have been used to make the app accessible and easy to navigate for the young target audience.

4

5. (continued)

- (c) Describe how golden ratio has been used to design the layout of the home screen.

2

To ensure the app works across a range of electronic devices the company will produce their animations using different video file types, including avi and 3gp.

- (d) Describe how each of these file types would be used to support playback on a range of electronic devices.

2

[END OF QUESTION PAPER]



ADDITIONAL SPACE FOR ANSWERS

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ADDITIONAL SPACE FOR ANSWERS

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Mint leaf image — Heartlive/shutterstock.com
- Question 2 Ventilation airflow image — Monika Wisniewska/shutterstock.com
- Question 2 (b) Gorodenkoff/shutterstock.com
- Question 2 (c) Whitevector/shutterstock.com
- Question 4 (a) Sergey Maksimov/shutterstock.com
WOSUNAN/shutterstock.com
- Question 4 (c) Gorodenkoff/shutterstock.com
- Question 4 (d) panuwat phimpha/shutterstock.com
- Question 5 (a) Golf image — Maquiladora/shutterstock.com
Running image — urlight/shutterstock.com
Basketball image — Maquiladora/shutterstock.com
Football image — Ninchik/shutterstock.com
Bowling image — Maquiladora/shutterstock.com
Exercise image — The img/shutterstock.com
Hockey image — pikepicture/shutterstock.com
- Question 5 (b) Incorporates an image from Ninchik/shutterstock.com
Leremy/shutterstock.com
Maksim Ankuda/shutterstock.com

