FOR OFFICIAL USE

National Qualifications 2019

Mark

X735/77/01 Graphic Communication

TUESDAY, 21 MAY
1:00 PM – 3:00 PM

X7357701

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 — 80

Attempt ALL questions.

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.

SQA ©

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Total marks — 80

Attempt ALL questions

MARKS | DO NOT WRITE IN THIS MARGIN

1. A CAD model of an egg timer is shown below.

The CAD model was produced using bottom up modelling.

a) Explain the terms top down and bottom up modelling. **2**

Top down _____

_____

Bottom up _____

_____

Technical graphics of the glass container and the supporting leg will be used by the manufacturer of the egg timer. These graphics are shown on the **supplementary sheet for use with question 1**. The supporting leg is annotated with TOLERANCE A. The glass container is annotated with DATUM FACE B.

(b) (i) Explain why TOLERANCE A, applied to the leg of the egg timer, is different from the general tolerance applied to the dimensions. **1**

_____

_____

(ii) Describe two reasons for including DATUM FACE B in the technical graphics used by the manufacturer. **2**

_____

_____

_____

_____

1. (continued)

MARKS DO NOT WRITE IN THIS MARGIN

(c) Describe the 3D CAD modelling techniques used to create the **'glass container'**. You must include the terms 'tangent constraint', 'mirror' and 'shell' in your answer. **Refer to the supplementary sheet for use with question 1.**

Make reference to relevant dimensions from the drawings in your answer.

You may use sketches to support your answer. **6**

1. (continued)

(d) Describe the 3D CAD modelling techniques used to create the **'supporting leg'** of the egg timer. **Refer to the supplementary sheet for use with question 1.**

Make reference to the dimensions from the drawings in your answer.

You may use sketches to support your answer. **5**

2. An international airline has asked a graphic designer to plan and produce an animation to help inform passengers of the safety procedures on board its planes.

Motion tweening was used to create the animation.

(a) Describe three key setup requirements, in addition to selecting the character and positioning the first frame, when producing a motion tweening animation. **3**

2. (continued)

(b) State an appropriate file format which can be used to save the animation. **1**

(c) (i) Describe **two** advantages to the **airline passengers** of using an animation rather than printed safety information. **2**

(ii) Describe **two** disadvantages to the **airline company** of creating an animation rather than printed safety information. **2**

3. An annual extreme sports event attracts visitors from around the world. A design for a promotional flag advertising the event is shown on the **supplementary sheet for use with question 3**.

(a) Describe how the designer has used 'silhouette', 'negative space' and 'balance' to give the flag maximum visual impact. **3**

Silhouette _____

_____

_____

Negative space _____

_____

_____

Balance _____

_____

_____

(b) Explain, giving two reasons, why the designer chose to create the flag graphic using vector graphics software. **2**

_____

_____

_____

_____

_____

_____

[Turn over

3. (continued)

(c) The source graphic of the biker was a photograph.

Image 1

Image 2

(i) State a suitable raster file type for saving the photograph shown in **Image 1**. **1**

(ii) State a suitable vector file type for saving the finished biker image used on the flag shown in **Image 2**. **1**

Three methods were considered for producing the city scape image used in the flag.

- Method 1, creating a 3D model of the city scape and exporting the resulting image.
- Method 2, creating a sketch and then using a scanner to generate the image.
- Method 3, using a 'Shutterstock' image.

(d) (i) Describe two advantages to the graphic designer of using method 1. **2**

3. (d) (continued)

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

(iii) Describe two advantages of using method 3. **2**

[Turn over

3. (continued)

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The designer received a digital proof from the printer for final checking.

(e) Explain, giving two reasons, why the following are critical to the quality of the printed flag.

(i) Registration marks **2**

(ii) Colour calibration **2**

(f) Explain, giving three reasons, why the company would protect the rights to the graphics produced for the event. **3**

MARKS

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T-shirts are available to buy at the event as part of a range of promotional merchandise. Two of the T-shirt designs are shown below.

(g) (i) State the name of an appropriate printing process for the T-shirt design. **1**

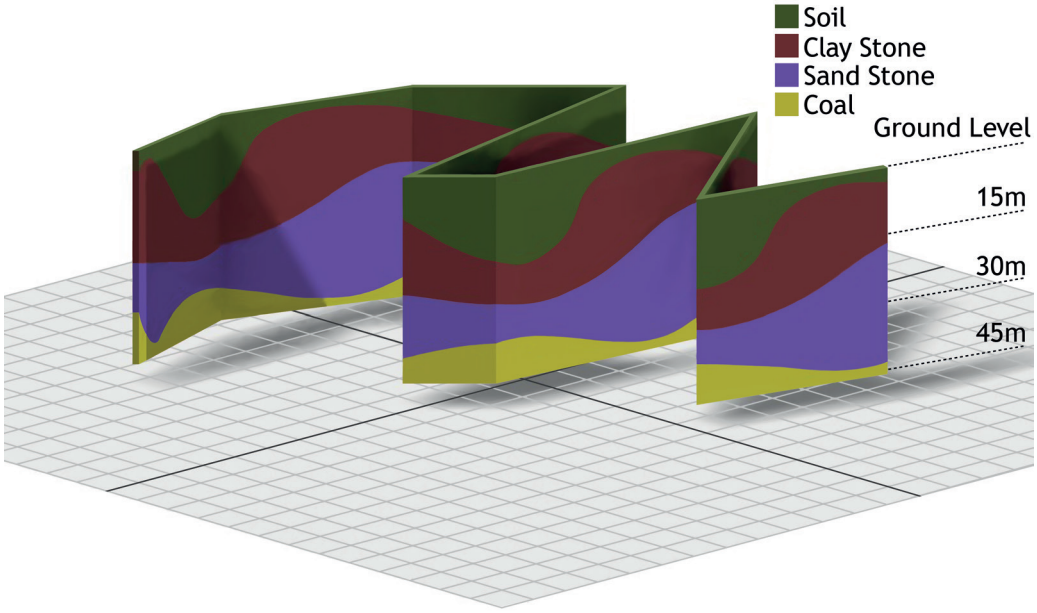
(ii) Explain, giving three reasons, why this printing process is suitable. **3**

[Turn over

4. A small housing development is being planned within a conservation area.

Three built environment surveys have been completed and the results are shown in the graphics 1 to 3 below.

Graphic 1



(a) (i) State the name of the survey that produced the result illustrated in Graphic 1. **1**

Survey type _____

(ii) Explain the purpose of this survey with respect to the housing development. **2**

Purpose _____

_____

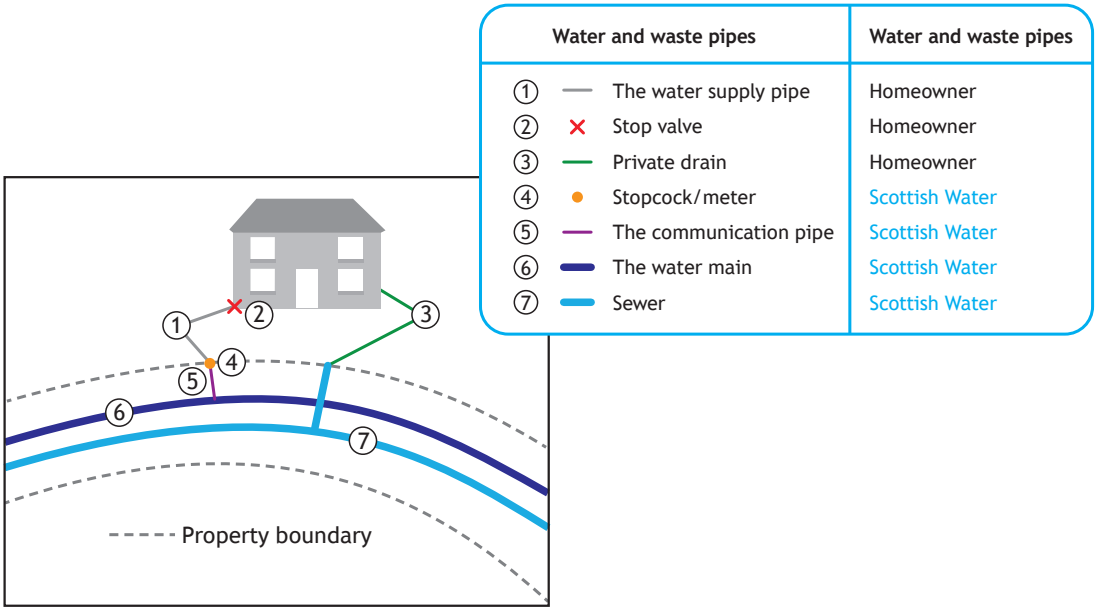
_____

_____

_____

4. (a) (continued)

Graphic 2



(iii) State the name of the survey that produced the results illustrated in Graphic 2. **1**

Survey type _____

(iv) Explain the purpose of this survey with respect to the housing development. **2**

Purpose _____

_____

_____

_____

_____

[Turn over

4. (a) (continued)

Graphic 3

1:25000

(v) State the name of the survey that produced the results shown in Graphic 3. **1**

Survey type _____

(vi) Explain the purpose of this survey with respect to the housing development. **2**

Purpose _____

_____

_____

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_____

[Turn over for next question

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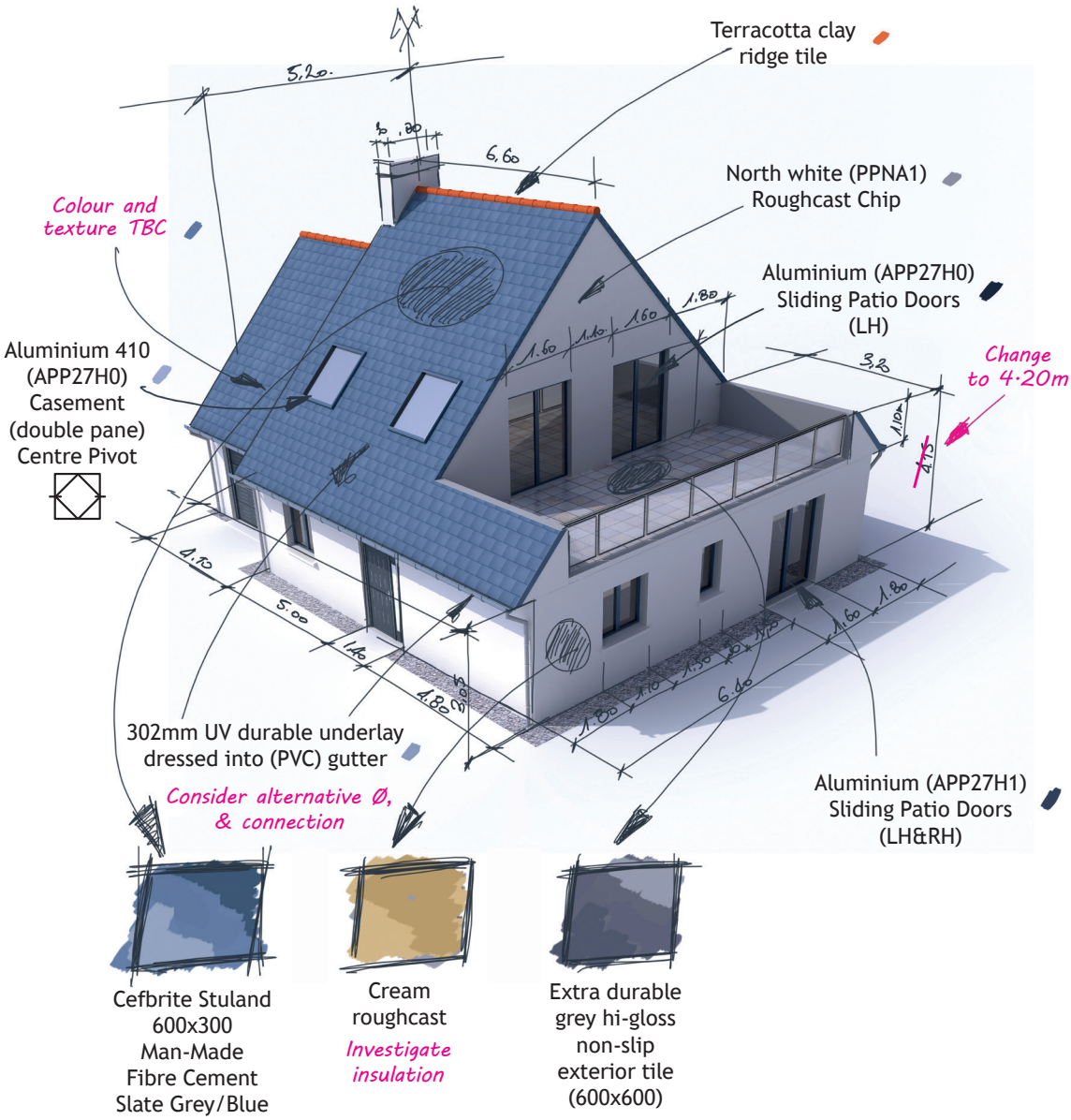
4. (continued)

(b) A preliminary graphic of one of the houses in the new development is shown below.

Graphic 1



4. (b) (continued)

Explain two ways the information contained in Graphic 1 could be used by the following audiences.

(i) Quantity surveyor **2**

(ii) Architectural technician **2**

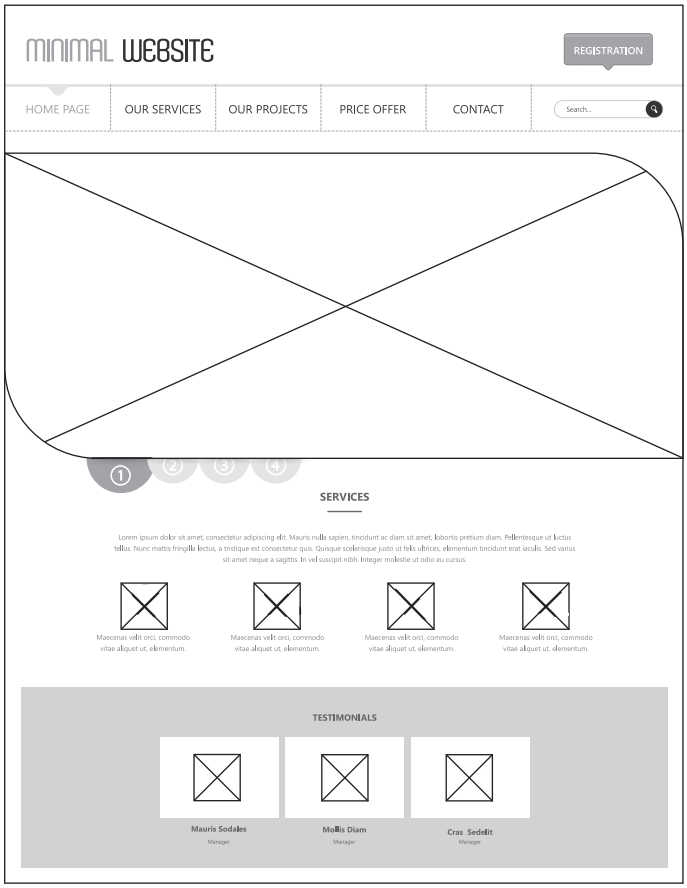
(iii) Conservation body **2**

[Turn over

5. A website is being created for a wind turbine company. **MARKS** DO NOT WRITE IN THIS MARGIN

The initial web page layout, also known as a 'wireframe' is shown in **Graphic 1** below.

Graphic 1: Website wireframe

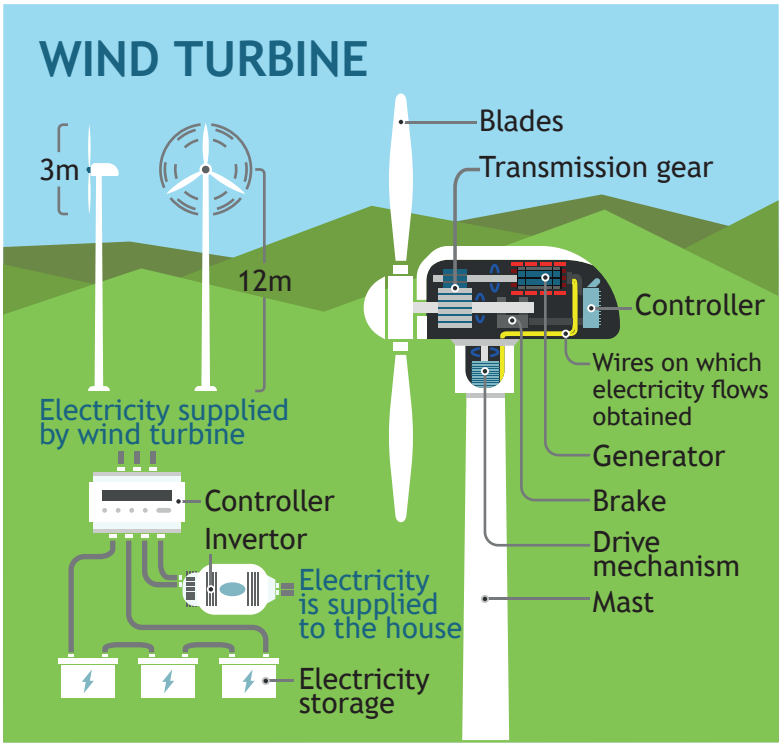


(a) Explain three purposes of using a wireframe in web design. **3**

The website will include various educational, technical and commercial information.

An educational infographic aimed at young people will be available from the website in a PDF file format, shown in **Graphic 2**.

Graphic 2: printable PDF



(b) Explain, with reference to design elements or principles, why the graphic is suitable for the target audience. **2**

5. (continued)

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The company are keen to make the website as accessible and interactive as possible.

(c) (i) Describe how the use of the following graphic file formats could make the website accessible. **2**

3GP _____

_____

WMV _____

_____

(ii) Describe how the following graphic media file formats could be used to make the website interactive. **2**

VRML _____

_____

MPEG _____

_____

MARKS

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A new design of wind turbine is being introduced by the company. A graphic of the turbine, shown below, will feature in the website's background image.

Graphic 3: background image

(d) Explain how the image emphasises the new turbine, making reference to the following design elements and principles. Repeated responses will not attract any marks.

(i) White space **1**

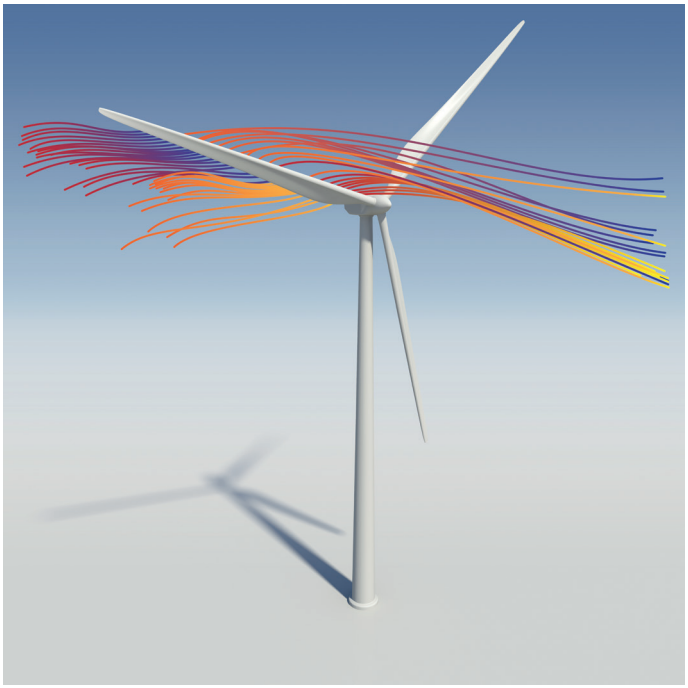
(ii) Rule of thirds **1**

(iii) Depth of field **1**

5. (continued)

The website will include a section on the function of the new turbine and includes **Graphic 4** shown below.

Graphic 4: digital test



(e) (i) State the name of the digital testing method shown in **Graphic 4**. **1**

(ii) Describe how an engineer could make use of this test when designing the turbine. **2**

5. (e) (continued)

(iii) Describe two factors, other than the design of the turbine, that must be considered by an engineer to make the test as realistic as possible. **2**

_____

_____

_____

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