

Candidate 1

The candidate was awarded a total of **61 marks**.

Section 1

Question 1(a)

The candidate was awarded **5 marks** for the following responses:

- ◆ 'Stainless steel frame ... strong and able to hold the weight of a person'
- ◆ 'tubular mild steel frame ... scratch resistant which means it will keep its aesthetic look.'
- ◆ 'Tubular stainless steel frame ... chemical resistant which means it is easy to clean'
- ◆ 'Nylon bearings ... self lubricating, this is suitable as the product will be able to move easily'
- ◆ 'Rubber handles ... will be comfortable'

Question 1(b)

The candidate was awarded **6 marks** for the following responses:

- ◆ 'Extrusion of the mild steel frame'
- ◆ 'will have uniform cross section'
- ◆ 'Injection moulding of the hollow ABS wheels'
- ◆ 'it is a repeated process'
- ◆ 'has very intricate detail'
- ◆ 'Welding of the tubular steel frame'

Question 1(c)

The candidate was awarded **3 marks** for the following responses:

- ◆ 'The width of the seat must fit the width of 95th percentile bottom' (the percentile is not required to gain the mark)
- ◆ 'The diameter of the handles must fit the grip'
- ◆ 'The force that is used to push and pull the handles ... for every user'

Question 1(d)

The candidate was awarded **5 marks** for the following responses:

- ◆ 'made from stainless steel ... digger is hygienic'
- ◆ 'the scoop is large and able to pick up a large amount of dirt'
- ◆ 'The handles also provide comfort'
- ◆ 'large wheels ... move easily'

- ◆ 'The wheels on digger 2 ... grip onto the ground easily'

Question 1(e)

The candidate was awarded **3 marks**.

- ◆ 'Jigs could be used to ensure holes are being drilled in the correct places.'
- ◆ 'A Gantt chart ... specialists know when needed'
- ◆ 'Batch production ... regular checks can be done throughout'

Section 2

Question 2(a)

The candidate was awarded **2 marks** for the following responses:

- ◆ 'Thermo-setting plastic ... stay the exact same'
- ◆ 'scratch resistant which means it will be able to keep its aesthetic look.'

Question 2(b)

The candidate was awarded **2 marks** for the following responses:

- ◆ 'ensures accuracy of the product.'
- ◆ 'ensures intricate detail in products.'

Question 2(c)

The candidate was awarded **4 marks** for the following responses:

- ◆ 'morphological analysis ... used as the final product.'
- ◆ 'random generator would be used so different ideas are chosen every time so many different ideas are made.'
- ◆ 'brain storming ... discuss a specific product.'
- ◆ 'Members of the group ... they will be going forward with.'

Question 3(a)

The candidate was awarded **2 marks** for the following responses:

- ◆ 'the consumer would easily be able to get new parts'
- ◆ 'bike may not be as expensive ... they could sell it for cheaper'

Question 3(b)

The candidate was awarded **3 marks** for the following responses:

- ◆ 'if something is wrong that the designer needs to fix it can be quickly and easily done.'
- ◆ 'easily send the design to different members of the team through email'
- ◆ 'designers can experiment a lot with CAD ... sizes and colours'

Question 3(c)

The candidate was awarded **1 mark** for the following responses:

- ◆ 'If a machine had to breakdown ... require a skilled person'

Question 4(a)

The candidate was awarded **2 marks** for the following responses:

- ◆ 'much faster than traditional manufacturing process which speeds up production time.'
- ◆ '3D printing is very accurate and can create fine details'

Question 4(b)

The candidate was awarded **3 marks** for the following responses:

- ◆ 'They will collect useful information for the designer such as target market'.
- ◆ 'Observation tests ... change certain things of the product'
- ◆ 'User trial, this is when a member of the public will use a prototype under an experiment environment'

Question 4(c)(i)

The candidate was awarded **1 mark** for the following response:

- ◆ 'what is wanted ... cost, functions'

Question 4(c)(ii)

The candidate was awarded **1 mark** for the following response:

- ◆ 'how the product will work ... such as movement and sizes.'

Question 5 (a)

The candidate was awarded **4 marks** for the following responses:

- ◆ 'The yellow ... is a very bold colour.'
- ◆ 'The contrast between the yellow and the grey'

- ◆ 'The texture ... look clean and new.'
- ◆ 'The style of the kettle is very modern as it is a very sleek design.'

Question 5(b)

The candidate was awarded **2 marks** for the following responses:

- ◆ 'Confidentiality'.
- ◆ 'used to protect secret formulas or ingredients'

Question 6

The candidate was awarded **3 marks** for the following responses:

- ◆ 'Ergonomists test sizes of people ... and correct to scale.'
- ◆ 'Market researchers ... interviews to show what exactly the public wants and needs.'
- ◆ 'Project Manager makes sure everyone knows what tasks they are doing'

Question 7(a)(i)

The candidate was awarded **2 marks** for the following responses:

- ◆ 'A float test ... lighter than stainless steel.'
- ◆ 'A flame test could be used by looking at the colour of the flame to identify the material.'

Question 7(a)(ii)

The candidate was awarded **0 marks** because they gave an incorrect answer.

Question 7(b)

The candidate was awarded **3 marks** for the following responses:

- ◆ 'could use recyclable materials'
- ◆ 'label their materials to let the users know how to recycle them properly.'
- ◆ 'reduce their carbon footprint by bulk buying so many materials are coming at the same time'

Question 8

The candidate was awarded **4 marks** because they displayed adequate knowledge and understanding of the types of models used at certain stages of the design process, and the information that can be gained.