| Centre | Number |
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| O CHILIC | Humber |



71

Candidate Number

General Certificate of Secondary Education January 2015

Engineering

Paper 2

Assessment Unit 3

assessing Engineering Technology

[GEE32]

TUESDAY 13 JANUARY, AFTERNOON





1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper. Answer **all** parts of the one question in this paper.

The paper should be answered in relation to the Pre-Release Material.

You will be provided with a new copy of the Pre-Release Material. You should **not** bring any of the material previously issued, or any notes made into this examination.

INFORMATION FOR CANDIDATES

The total mark for this paper is 40. Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each part question. Quality of written communication is assessed in **(i)** and **(j)**.

| For Examiner's use only | | |
|----------------------------|-------|--|
| Question Number | Marks | |
| (a) | | |
| (b) | | |
| (c) | | |
| (d) | | |
| (e) | | |
| (f) | | |
| (g) | | |
| (h) | | |
| (i) | | |
| (j) | | |
| Total Marks | | |

| | | | Answer all parts of the question. | Examiner Only Marks Remark |
|-----|----|------|---|-------------------------------|
| I (| a) | | e frame of the highchair shown in the Pre-Release Material is made n tubular aluminium. | |
| | | | Give one reason why tubular aluminium is a more suitable material to make the frame of the highchair than steel. | |
| | | | [1] | |
| | | (ii) | Name the process used to manufacture tubular aluminium. | |
| | | | [1] | |
| (| b) | The | tray which is attached to the highchair is made from a polymer. | |
| | | • • | Outline one advantage of manufacturing the tray from a polymer rather than wood. | |
| | | | [1] | |
| | | • • | Name an appropriate polymer which could be used to manufacture the tray. | |
| | | | [1] | |
| (| c) | | line two examples of how modern technology has reduced lead es in the manufacture of highchairs. | |
| | | 1 | | |
| | | | [1] | |
| | | 2 | | |
| | | | [1] | |
| | | | | |
| | | | | |
| | | | | |

| (d) | | e process of injection moulding is used extensively to manufacture ts of the highchair shown in the Pre-Release Material. | Examine Marks | r Only Remark |
|-----|------|---|------------------|------------------|
| | | ve one reason why injection moulding is an appropriate process ed to manufacture these parts. | | |
| | | [1] | | |
| (e) | | e main frame of the highchair is manufactured using round section minium. | | |
| | (i) | Describe how round section aluminium is a more appropriate choice of material than using box section aluminium. | | |
| | | | | |
| | | [2] | | |
| | (ii) | Aluminium is a non-ferrous metal. | | |
| | | Outline one advantage of using a non-ferrous metal instead of a ferrous metal. | | |
| | | [2] | | |
| (f) | (i) | Give one example where CAM is used by the manufacturer when producing a highchair. | | |
| | | [1] | | |
| | (ii) | Explain, giving an example, of how CAM has helped control manufacturing costs in the production of a highchair. | | |
| | | [2] | | |
| | | | | |

| (g) | (i) | Using quality control during manufacture helps check for any potential errors in production. Give two examples of how syste and control technology can be used as a quality control method the manufacture of a highchair. | | Examine Marks | er Only Remark |
|-----|------|---|-----|------------------|-------------------|
| | | 1 | | | |
| | | | [4] | | |
| | | | [1] | | |
| | | 2 | | | |
| | | | [1] | | |
| | | | [1] | | |
| | (ii) | Explain, giving one example, how implementing systems and control technology quality control procedures can be an advantage or disadvantage for the manufacturer. | | | |
| | | | | | |
| | | | [2] | | |
| (h) | ma | duction planning is one of the most important stages in the nufacture of highchairs. Give two reasons why this is the case. | | | |
| | | | [1] | | |
| | 2 | | | | |
| | | | | | |
| | | | [1] | | |
| | | | | | |
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(i) Using notes and annotated sketches in the box below, show how the tray is attached to the frame of the highchair and how it can be adjusted to different positions.

Examiner Only Marks Remark

Marks will be awarded for

- Detail contained in sketches [4]
- Quality of sketches [3]
- Detailed notes [3]



(j) Using notes and annotated sketches in the box below, show how the back of the highchair can be adjusted to different positions.

Examiner Only Marks Remark

Marks will be awarded for

- Suitability of chosen method [4]
- Quality of sketches [3]
- Detailed notes [3]

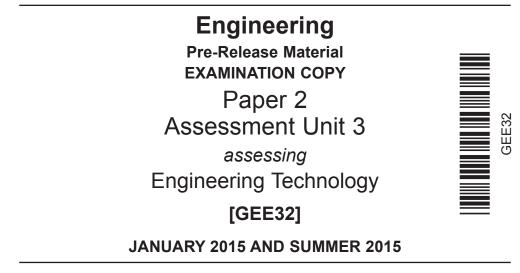
[10]

THIS IS THE END OF THE QUESTION PAPER

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General Certificate of Secondary Education 2015



You must use **this** clean copy of the Pre-Release Material in the examination and **not** your own annotated copy.

Answer all parts of the question.

There is one question in this paper which relates to the pre-release materials.

You should draw on the knowledge gained from the pre-release task and also Unit 3: Engineering Technology.

The image below shows a baby's highchair.



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Description

Finding a comfortable chair for your child can be quite a task. The highchair shown above is a light weight and comfortable highchair for your baby to sit in. This highchair is one of its kind, due to its modern designs which are colourful and attractive, giving it a stylish look. Easy to co-ordinate with your kitchen, this highchair is very light (only 5.9 kg), thus occupying minimal space, and can be moved around with ease. It is compact, practical and foldable making it ideal for storage. The chair has a basket underneath which is useful and practical allowing you to store additional items.

Features include:

- 3 position reclining seat
- 5-point restraint harness
- Deep, padded comfortable seat with a rigid crotch strap, to prevent baby sliding down
- Footrest
- Easy to use and open/close, operated from buttons on the side
- Removable and wipe clean P.V.C. seat cover
- Highchair tray has 4 positions and is removable for storage
- Tray lock button on either side to prevent accidental removal
- Large net basket for storing essential items, toys etc
- Free standing when folded and compact when closed
- Can be broken down further by splitting legs, making it very compact

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