

GCE

Design and Technology

Unit **F524/02**: Product Design: Component 2

Advanced GCE

Mark Scheme for June 2014

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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(S) Specification points which are qualified and justified

A clear relevant statement – (1 mark), clear relevant justification – (1 mark)

No marks awarded for generic statements or repeated information given in question.

3 x 2 [6]

(R) Range of developed ideas

| | |
|--------------|---|
| 0–5 | A limited range of ideas with little evidence of innovation and little development. |
| 6–10 | A good range of appropriate innovative ideas with limited development of some or all ideas. |
| 11–15 | A wide range of significantly different innovative ideas, which are developed as far as possible. |

[15]

(D) Consideration of manufacturing/construction detail

| | |
|-------------|---|
| 0–4 | Limited consideration of appropriate techniques, justification of appropriate materials and components and measurements. |
| 5–8 | Some consideration of appropriate techniques, justification of appropriate materials and components and measurements. |
| 9–12 | Detailed consideration of appropriate techniques, justification of appropriate materials and components and measurements. |

[12]

(E) Evaluation of ideas with reference to the specification and volume production

| | |
|------------|--|
| 0–2 | Limited evidence of evaluation or reference to volume production. |
| 3–4 | Some evidence of subjective evaluation or reference to volume production. |
| 5–6 | Detailed evidence of objective evaluation or reference to volume production. |

[6]

| (F) Chosen features for FDO and justification of choices made | |
|--|--|
| 0–3 | Limited identification and justification of features. |
| 4–6 | Some identification and justification of features. |
| 7–9 | Detailed identification and justification of features. |

[9]

| (C) Communication skills and techniques | |
|--|--|
| 0–2 | Limited level of graphical skill and annotation. |
| 3–4 | Reasonable level of graphical skill and annotation appropriately used. |
| 5–6 | High level of graphical skill and concise annotation that can be easily followed by a third party. |

[6]

Paper Total [54]

(S) Specification points which are qualified and justified

| Question | Answer | Marks | Guidance |
|----------|---|-------|----------|
| 1 | <p>Built Environment and Construction</p> <p>Specification points could be:</p> <p>The information desk must allow both standing and wheelchair bound users to speak to advisors and read and reach printed information so that all shoppers are able to access information.</p> <p>The information desk must allow advisors to enter and leave their designated space easily so that in emergencies they can leave quickly and safely.</p> <p>There must be adequate storage for information leaflets etc. which may be used to restock customer displays so that leaflets are always available for customers.</p> <p>There must be a clear, high level title ‘Information desk’ so that customers can see where to get help and advice from a distance.</p> <p>All materials, surfaces and surface finishes must be durable and easy to clean so that the desk remains smart and looking professional for a long time.</p> <p>The information desk should give advisors access to IT facilities for up to date information and keep the equipment secure from theft.</p> | | |
| 2 | <p>Engineering</p> <p>Specification points could be:</p> <p>For safety the product must be stable when erected because it may be subject to high winds and/or impact from people or construction traffic.</p> | | |

| Question | Answer | Marks | Guidance |
|----------|--|-------|----------|
| | <p>The product must be stable on uneven surfaces because building sites often have a variety of surfaces that are not level.</p> <p>The lights must be adjustable so that they can be directed where needed and to avoid dazzling passing motorists or pedestrians.</p> <p>The product should fold / collapse to a size that will fit into a typical builders van (approx max dimension 2.4m) for easy transport from site to site.</p> <p>It should be possible for one man to move (carry) the product from place to place on the site to allow light to follow as work progresses. It should not weigh more than 30kg and could have handles to aid carrying.</p> <p>All construction and materials should be strong and robust to withstand harsh environment and handling likely to be found on a construction site.</p> | | |
| 3 | <p>Food</p> <p>Specification points could be:</p> <p>The product must be able to be eaten hand held/on the go to suit the lifestyle of a typical teenager.</p> <p>The product must be able to be sold frozen/ready to cook because teenagers are unlikely to bother with complex food preparation.</p> <p>The product must be microwavable (<i>nb this excludes pastry products</i>) because this is the preferred cooking method of most teenagers.</p> | | |

| Question | Answer | Marks | Guidance |
|----------|--|-------|----------|
| | <p>The product must be available as a single portion but could be cooked in multiples to suit couples or small groups.</p> <p>The ingredients used must be low cost to meet a teenager's budget</p> <p>Creative and innovative to appeal to a teenager over other products</p> | | |

| Question | Answer | Marks | Guidance |
|----------|---|-------|----------|
| 4 | <p>Graphic products</p> <p>Specification points could be:</p> <ul style="list-style-type: none"> The package must be robust to protect an expensive and delicate product The package must include a handle or strap for ease of portability The package must hold the product securely when on the move The package should not overtly show what is in the package to avoid theft or attract undue attention The package should protect the product from a fall of up to 1.5 metres to prevent reasonable accidental damage The package should be designed/manufactured to the highest standard expected of a luxury product | | |
| 5 | <p>Manufacturing</p> <p>Specification points could be:</p> <ul style="list-style-type: none"> The product should have clearly defined sections so that it obvious where different types of waste should be placed. It must be easy to put waste materials into the correct section; otherwise the product may not be used properly The product must have seals to prevent smells getting into the house The product must be suitably sized to take up minimal space in the house/kitchen | | |

| Question | Answer | Marks | Guidance |
|----------|---|-------|----------|
| | The sections should have removable liners to make emptying easy The sections should be sized to suit the type of waste it will contain | | |

| Question | Answer | Marks | Guidance |
|----------|---|-------|----------|
| 6 | <p>Resistant Materials</p> <p>Specification points could be:</p> <p style="padding-left: 40px;">The product must be stable when erected to prevent accidents when used by lively schoolchildren</p> <p style="padding-left: 40px;">The product must be able to withstand robust treatment from school students</p> <p style="padding-left: 40px;">Secondary school students must easily access the product; appropriate heights considered.</p> <p style="padding-left: 40px;">The product must be constructed from materials that can withstand weathering, or finished to protect from corrosion/degradation as it is to be used outside.</p> <p style="padding-left: 40px;">The product must be easily and quickly cleaned to maintain hygiene</p> <p style="padding-left: 40px;">The product must have sufficient table space for three meals plus drinks.</p> | | |

| Question | Answer | Marks | Guidance |
|----------|--|-------|----------|
| 7 | <p>Systems and Control</p> <p>Specification points could be:</p> <p>The product must be straightforward to use without specific training so that it is suitable for DIY use.</p> <p>The product should not require the user to climb or to expose them to risk of falling to ensure the safety of the user.</p> <p>There should be no risk of the product falling from a height during use, to ensure the safety of people and property on the ground.</p> <p>The product should work on windows of various sizes to make it functional.</p> <p>The product should effectively clean into the corners of the windows to make it functional.</p> <p>The product should not damage or scratch the glass during use to make it functional.</p> | | |

| Question | Answer | Marks | Guidance |
|----------|--|-------|----------|
| 8 | <p>Textiles</p> <p>Specification points could be:</p> <p>The product must be able to be easily used by a child, allow them to pack away and retrieve items comfortably</p> <p>The product must be able to be produced in a range of colours/designs to suit environment/child's choice</p> <p>The product must not be bulky and take up too much room</p> <p>The product must be securely fixed or stable to prevent accidents when in use</p> <p>The product must be machine washable with little or no disassembly so that it can easily be kept clean</p> <p>The product should contain several sections to encourage the child to organise their toys and belongings.</p> | | |

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

Education and Learning

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

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OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

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