

# **Design and Technology**

Advanced GCE

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

## **Mark Scheme for January 2012**

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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]

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

[9]

<b>(C) Communication skills and techniques</b>	
<b>0–2</b>	Limited level of graphical skill and annotation.
<b>3–4</b>	Reasonable level of graphical skill and annotation appropriately used.
<b>5–6</b>	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><b>Built Environment and Construction</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>• The structure must provide clear visibility of the performers for the audience</li> <li>• The structure must have easy access and exit points</li> <li>• The structure must be robust and designed to resist/minimize vandalism</li> <li>• The structure must include some form of protection from wind as performers may need to use music sheets</li> <li>• The structure may include a storage area for seats and equipment for performers.</li> </ul>		
2	<p><b>Engineering focus</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>• The barrier system should be easy to erect and dismantle</li> <li>• The barrier system must be stable to prevent collapse when in use</li> <li>• Individual sections should be able to link together to form a continuous length of barrier</li> <li>• The barrier system must be resistant to all weather conditions.</li> <li>• Individual sections should fold and be compact for ease of transportation</li> <li>• The barrier must be strong enough to prevent damage/breakage when in use</li> </ul>		

Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> <li>• The barrier sections must not have any sharp edges to cause injury to the user or when being carried/erected</li> <li>• The barrier sections should be of simple design and construction to cut down cost</li> <li>• The barrier system should be given a 'high-vis' finish to improve safety in use</li> <li>• The sections should be high enough to produce a barrier without affecting stability.</li> </ul>		
3	<p><b>Food</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>• The product must contain one portion of fruit or vegetable</li> <li>• The product must have an edible casing</li> <li>• The product must supply 1/3 of a primary school child's daily energy requirements</li> <li>• The product must be suitable to be served warm or cold.</li> </ul>		

Question	Answer	Marks	Guidance
4	<p><b>Graphics</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>• The product must have graphics which give a clear school identity</li> <li>• The product must be able to carry up to 2kg weight (potatoes)</li> <li>• The product be produced flat pack and folded up when required to ease storage</li> <li>• The product must have a comfortable but strong handle (well secured) so that products can be transported with ease without fear of failure</li> <li>• The product must resist moisture as some fruit and vegetable may be wet or over ripe.</li> </ul>		
5	<p><b>Manufacturing focus</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>• The product must allow safe use by all age-groups</li> <li>• The product should fold to be compact for storage when not in use</li> <li>• The product must be easy to use/assemble</li> <li>• The product must be easy to carry from room to room</li> <li>• The product must allow items to be reached without risk of being dropped</li> <li>• There should be no sharp edges that might cause injury or damage to walls/furniture</li> <li>• The product should be aesthetically pleasing for use in the house</li> <li>• The product should be available in a range of colours to match popular colour schemes</li> <li>• The product should be relatively inexpensive as it may not be in frequent use</li> </ul>		

Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> <li>The product should be of simple design/construction to cut down cost.</li> </ul>		
6	<p><b>Resistant Materials</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>The product must be resistant to corrosion and degradation as it is in an outdoor environment.</li> <li>The product must dispense water effectively by pouring or a simple spray system</li> <li>The product may include wheels, which must be locked on uneven ground</li> <li>The product may be carried – handles or straps must be comfortable to transport the product to different parts of the school grounds</li> <li>The product must collect sufficient rainfall to be useful to water to not be too heavy to carry</li> <li>The product should be easily cleaned so that harmful substances may not collect and be inadvertently dispersed around the garden.</li> </ul>		
7	<p><b>Systems &amp; Control</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>The product must be able to collect a wide range of leaves efficiently without damaging grass or tarmac surfaces</li> <li>The product must be easily operated by one person</li> <li>The product must be light in weight so that a number of wet leaves can be picked up in one go</li> <li>A simple mechanism should be employed to compress leaves requiring minimal effort from the User</li> </ul>		



Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> <li>• The mechanism must not have any parts which may trap and injure parts of the body</li> <li>• The product must be able to easily empty leaves into a standard compost bag without extra spillage.</li> </ul>		
8	<p><b>Textiles</b></p> <p>Specification points could be:</p> <ul style="list-style-type: none"> <li>• The product must provide hanging space for clothes</li> <li>• The product must flat pack for purchase and storage in a fabric bag</li> <li>• The product must have dividers for storing small items (socks/tights/underwear etc)</li> <li>• The product must be totally enclosed to protect from dust and dirt</li> <li>• The product must be free standing within a room.</li> </ul>		

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