GCE

Design and Technology

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

Advanced GCE

**Mark Scheme for June 2018**
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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.

(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.

(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.

(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.
(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]
1 Built Environment and Construction

Specification points could be:

- The product must provide one-hour fire resistance.
- The product must provide a measure of sound resistance.
- The product must provide a measure of thermal insulation.
- The product must be capable of supporting its own weight.
- The product should be capable of resisting impact damage from doors closing, people and furniture.
- The product must be adequately fixed to the main structure.
2 Engineering

Specification points could be:

- The bin must fit in with the environment in which it is placed and not look out of place eg. school dining area
- The bin should have clear instructions on how to use the mechanism to reduce the size of the bottle.
- The bin should have a large enough capacity to not require too frequent emptying – not get full too quickly
- The storage container will get wet, materials must not react to water
- The bin could give a 'reward' eg sound when a bottle is crushed and inserted, to encourage usage.
3  Food

Specification points could be:

- The product must contain Higher Biological Protein such as Chicken, or Cheese, or vegan alternative
- The product must be an appropriate size to fit comfortably in the hand, approx. 15cm x 8cms
- The product could be encased with rough puff pastry or bread.
- The product is nutritionally sound as it incorporates a balance of carbohydrates, protein, vegetables and fats.
- The product is suitable for batch production in a portable kitchen.
4 Graphic Products Focus

Specification points could be:

- The packaging must comfortably hold the weight of multiples of three pots of herbs without tearing or distortion.
- The material used for the packaging must not be affected by water (compost may just have been watered) by staining, leakage or damage.
- The logo should clearly communicate Kitchen Garden, be easily recognisable and promote the product in a positive way.
- The packaging should provide clearance for the herbs to prevent damage whilst being transported.
- The packaging should have a comfortable carrying handle to allow the customer to transport with one hand.
5 Manufacturing

Specification points could be:

- The product must provide a working surface of 1.5m x 1m to allow safe usage and flexibility of movement.
- The product must be able to be securely fixed in position to prevent movement when in use.
- The product should have steps to enable easy access to the working platform.
- The product should be easily folded/dismantled to transport and store easily.
- The product should have a raised fence on at least three sides of the working platform to prevent the user from stepping off.
6 Resistant Materials

Specification points could be:

- The product must be stable in use as cans are quite heavy and could cause damage if they fall.
- The product must clearly display the cans for ease of location.
- The cans must be easily inserted and accessed from the product saving time and causing minimum disturbance.
- The product should be of appropriate style to fit in with the kitchen / environment.
- The product must be easily cleaned to maintain hygiene in a food environment.
- The product could have a handle of carrying feature to move the product with ease.
7 Systems and Control

Specification points could be:

- The product should hold the tablets securely to make it impossible for children to access them, for safety reasons.
- The product should reduce the complexity associated with loading the tablets, to increase the usability of the product for the patient or their carer.
- The product could accept standard blister packs of tablets to eliminate the need for the user to open the blister packs when loading the unit.
- The unit should provide an audible and visible alert to remind the user to take the tablets, so that it is usable by people who may have vision or hearing impairment.
- The product could network with a smart watch or smart phone to provide a more useful personal alert and reminder to take the medication.
- The user interface should enable the product to be easy to program so that the medication times can be entered without the need to refer to instruction manuals etc.
- The power source should last for a long time (perhaps in excess of a year) so that the user does not need to keep replacing batteries.
- The unit could be powered from the mains, with a rechargeable battery backup, to ensure an uninterrupted source of power.
8 Textiles

Specification points could be:

- The product should be comfortable to carry, ergonomics considered
- The product should have adjustable straps / handles / belts.
- The product should be a suitable size to carry all items needed for a day out.
- The product should be weather proof.
- The product should have a range of pockets / compartments for ease of access.
- The product should incorporate safety features e.g. bright colours, reflective fabrics, GPS locator etc.