

# Markscheme

November 2024

Design technology

Higher level

Paper 3

7 pages

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## General Marking Instructions

### Subject Details: Design Technology HL Paper 3 Markscheme

#### Mark Allocation

Candidates are required to answer **ALL** questions in Section A (total **[20 marks]**) ONE question in Section B **[20 marks]**. Maximum total = **[40 marks]**.

#### Markscheme format example:

Question			Answers	Notes	Total
4.	b	ii	the displacement and acceleration; are in opposite directions;	Accept <b>force</b> for <b>acceleration</b> .	2

- Each row in the “Question” column relates to the smallest subpart of the question.
- The maximum mark for each question subpart is indicated in the “Total” column.
- Each marking point in the “Answers” column is shown by means of a semi colon at the end of the marking point.
- A question subpart may have more marking points than the total allows. This will be indicated by “**max**” written after the mark in the “Total” column. The related rubric, if necessary, will be outlined in the “Notes” column.
- An alternative wording is indicated in the “Answers” column by a slash (/). Either wording can be accepted.
- An alternative answer is indicated in the “Answers” column by “**OR**” on the line between the alternatives. Either answer can be accepted.
- Words in angled brackets < > in the “Answers” column are not necessary to gain the mark.
- Words that are underlined are essential for the mark.
- The order of marking points does not have to be as in the “Answers” column, unless stated otherwise in the “Notes” column.
- If the candidate’s answer has the same “meaning” or can be clearly interpreted as being of equivalent significance, detail and validity as that in the “Answers” column then award the mark. Where this point is considered to be particularly relevant in a question it is emphasized by **OWTTE** (or words to that effect).
- Remember that many candidates are writing in a second language. Effective communication is more important than grammatical accuracy.
- Occasionally, a part of a question may require an answer that is required for subsequent marking points. If an error is made in the first marking point then it should be penalized. However, if the incorrect answer is used correctly in subsequent marking points then **follow through** marks should be awarded. When marking, indicate this by adding **ECF** (error carried forward) on the script. “ECF acceptable” will be displayed in the “Notes” column.
- Do **not** penalize candidates for errors in units or significant figures, **unless** it is specifically referred to in the “Notes” column.

**Section A**

Question		Answers	Notes	Total
1.	a	Literature search; expert appraisal; user trial; user research (questionnaire, survey, focus group, interviews); perceptual mapping; environmental scanning;	<i>Award [1] for listing each market research strategy that may have helped Twelve Degrees set the retail price of the Jarra up to [2 max].</i>	2
1.	b	A registered design protects the Jarra’s appearance/shape/form/design; and prevents competitors from imitating it/ distinguishes it from other clay containers in the market / allows Twelve Degrees to retain their competitive advantage in the market;	<i>Award [1] for identifying one reason why Twelve Degrees would protect the Jarra with a registered design and [1] for a brief explanation up to [2 max].</i>	2
1.	c	Clay is non-toxic (in use/disposal) / natural / does not react with its contents; its manufacture does not involve toxic releases / does not disrupt ecosystems / does not require finishing / is not harmful to the environment/users;	<i>Award [1] for identifying how clay helps the Jarra meet Datschefski’s safe principle of sustainable design and [1] for a brief explanation up to [2 max].</i>	2
1.	d	Jarra provides an alternative to cooling water/self-cooling (without the need for a refrigerator) / Jarra is reusable; it is manufactured from natural clay; this allows consumers to consciously purchase a product that does not harm the environment / that minimises the amount of waste reaching landfills (positive buying/sustainable consumption); meeting the demands of eco-fans/pressure groups;	<i>Award [1] for identifying why the Jarra is an example of ethical consumerism and [1] for each subsequent explanation up to [4 max].</i>	4

Question		Answers	Notes	Total
2.	a	Personae; scenarios; use cases;	<i>Award [1] for listing each UCD strategy for user research that AccuVein may have used to determine the wants and needs of their user population up to [2 max].</i>	2
2.	b	UCD design teams are/need to be multi-disciplinary; to better understand the users/needs/tasks/environment / for (medical) feedback / to provide a variety of skills / as the AccuVein AV500 is a complex product;	<i>Award [1] for identifying one reason why the UCD team involved medical staff in the development of the AccuVein AV500 and [1] for a brief explanation up to [2 max].</i>	2
2.	c	Field research is conducted in the user's natural environment/hospital/clinic/ on real patients; while a usability laboratory is a controlled/unnatural/artificial environment/monitored by observers;	<i>Award [1] for identifying field research and [1] for usability laboratory up to [2 max].</i>	2
2.	d	The AccuVein AV500 is easy to use / allows medical staff to achieve their goal; by pinpointing a patient's most accessible vein on their skin; which reduces error rate; and speeds up performance (injections) / increases first-attempt success rate / minimizes a patient's discomfort/pain / lowers memory burden;	<i>Award [1] for an explanation of how the AccuVein AV500 meets the effectiveness usability objective up to [4 max].</i>	4

Question		Answers	Notes	Total
3.	a	No dining/eat-in locations/order online/internet selling; distribution through (third party) delivery services;	<i>Award [1] for listing each implication of virtual kitchens on the place element in the 4Ps marketing mix up to [2 max].</i>	2
3.	b	Anyday Kitchen takes responsibility in minimizing their environmental impact; by producing less than 1% food waste / by reducing food waste (keeping food out of landfills) / by applying JIT approaches;	<i>Award [1] for identifying how product stewardship applies to Anyday Kitchen and [1] for a brief explanation up to [2 max].</i>	2
3.	c	Reduce errors / lead time / create an automated process; by monitoring/controlling the (entire) production;	<i>Award [1] for identifying one advantage of computer integrated manufacturing (CIM) for Anyday Kitchen up to [2 max].</i>	2
3.	d	<p>Anyday Kitchen applied the product development corporate strategy / is offering <u>new</u> products [chocolates and gifts] to <u>existing</u> markets; this strategy offsets risk of depending on one corporate strategy; and allows them to enhance their brand; to maintain a leading market position / widen the target market; and acquire a new revenue stream;</p> <p>Anyday Kitchen applied the diversification corporate strategy / is offering <u>new</u> products [chocolates and gifts] to <u>new</u> markets; this strategy offsets the risk of depending on one corporate strategy; and allows them to enhance their brand; to maintain a leading market position / widen the target market; and acquire a new revenue stream;</p>	<i>Award [1] for each distinct point of an explanation of the advantages of this corporate strategy for Anyday kitchen up to [5 max].</i>	5

Question		Answers	Notes	Total
3.	e	<p><b>Just in time:</b> Anyday kitchen prepares meals when ordered; to keep them fresh/hot/customizable per order / to reduce storage facilities; therefore, minimising surplus/unsold meals/excess stock / overproduction;</p> <p><b>Quality control:</b> Quality control is product oriented / helps Anyday Kitchen meet/exceed standards; to detect defects/errors; and prevent meals/ingredients that do not meet the quality standards from reaching consumers / eliminate (food) waste;</p> <p><b>Kaizen:</b> Kaizen is (a culture of) continuous improvement; employees are highly trained/multi-skilled/do-it right the first time /involved in decision making/empowered; to reduce errors / reduce lead time / improve productivity;</p>	<p><i>Award [1] for an explanation of the role of just in time (JIT) in maximizing the efficiency of producing the Anyday Kitchen meals up to [3 max].</i></p> <p><i>Award [1] for an explanation of the role of quality control in maximizing the efficiency of producing the Anyday Kitchen meals up to [3 max].</i></p> <p><i>Award [1] for an explanation of the role of KAIZEN™ in maximizing the efficiency of producing the Anyday Kitchen meals up to [3 max].</i></p> <p><i>Mark as [3] + [3] + [3].</i></p>	9