

# Markscheme

**May 2025**

**Design technology**

**Higher level**

**Paper 3**

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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	<p>Income / can afford premium products/prices;</p> <p>Profession / outdoor workers / factory workers / construction workers / workers exposed to fumes/dust/chemicals/noise;</p> <p>Age / young adults / middle aged professional / elderly;</p> <p>Family / seek protective products for their family members;</p> <p>Values / lifestyle / brand conscious / trendsetters / tech-savvy / technophile / tech enthusiasts / innovative driven;</p> <p>Behaviour / commute in urban settings / frequent travellers;</p> <p>Geographic / live in <u>polluted</u> (urban) areas/cities / heavy traffic zones;</p> <p>Health / health-conscious / sensitive to air pollution/airborne allergies/asthma/ loud noises / autistic;</p>	<p><i>Award [1] for listing each potential market segment for marketing the Dyson Zone up to [2 max].</i></p>	2
1.	b	<p>A product family uses common/standardized parts/materials/components/ minimizes inventory / minimizes waste / enables JIT/partnering with suppliers;</p> <p>A product family shares common manufacturing processes (tools/machines/ equipment)/assemblies / allows for rapid changeover / reduces lead time;</p> <p>A product family satisfies more users / meets customer requirements / pulls production from customer demand;</p>	<p><i>Award [1] for each advantage of a product family for lean production up to [2 max].</i></p>	2

1.	c	<p>Testing the Dyson Zone in the environment where it will be used / in countries/locations with (different) noise and air pollution conditions;</p> <p>which is more authentic/accurate / cannot be tested in a controlled environment/in a usability laboratory / is more cost effective than setting up a usability laboratory / allows prolonged user testing;</p>	<p><i>Award [1] for identifying the importance of testing the Dyson Zone in a natural environment and [1] for a brief explanation.</i></p>	2
1.	d	<p>A pioneering strategy means being first to market with a new innovation;</p> <p>Dyson pioneered several products such as vacuum cleaners/air purifiers/hairdryers/bladeless fans/Dyson Zone / took many risks / invested in research and development / patented many technologies / diversified;</p> <p>this set Dyson apart from competitors / positioned the brand as a market leader/innovator / attracted imitators;</p> <p>which built a strong reputation / increased brand loyalty/trust / offset risks / brought financial rewards (profits) / allowed Dyson to charge premium prices / supported global brand recognition;</p>	<p><i>Award [1] for identifying how Dyson has used pioneering strategies to develop their brand over the past 30 years and [1] for each subsequent explanation up to up to [4 max].</i></p>	4

Question		Answers	Notes	Total
2.	a	<p>Identify how customers perceive/position the shoe in comparison to other shoes in the market;</p> <p><u>graphically</u> represent customer opinions/feedback;</p> <p>inform design improvements/adjustments;</p> <p>benchmark against competitors;</p> <p>verify customer expectations/perceptions/needs;</p> <p>adjust promotion strategies;</p> <p>Identify market gaps;</p>	<p><i>Award [1] for listing each advantage of using perceptual mapping when testing the Allbirds x Adidas performance running shoe with potential customers up to [2 max].</i></p>	2
2.	b	<p>Advertising;</p> <p>Print advertising / digitised advertising (TV / screens / electronic signs / billboards / projections) / radio / social media campaigns / influencer marketing / sponsorships / above the line / below the line / ecolabeling / sustainability reporting;</p> <p>Publicity;</p> <p>Employ celebrities / sponsorships / influencers to wear/be seen in/promote the shoe / eco-labelling / sustainability reporting;</p> <p>Personal selling;</p> <p>One-to-one interaction with prospective customers in sports shops / malls / pop ups / emails / messages;</p>	<p><i>Award [1] for identifying one form of promotion that could stimulate demand for the Allbirds x Adidas performance running shoe and [1] for a brief explanation up to [2 max].</i></p> <p><i>Note to examiners: Do <b>not</b> award marks across clusters.</i></p>	2

<p>2.</p>	<p>c</p>	<p><b>Eco-champions:</b>                  Eco-champions are Individuals or groups that champion environmental issues within organizations;                  (attitude:) positive/supportive towards the shoe's price/environmental impact (low CO<sub>2</sub> emissions/use of bioplastics/recycled materials);                  (behaviour:) persuade others to purchase/adopt it / justify its good value for money (price);</p> <p><b>Eco-phobes:</b>                  Eco-phobes are individuals or groups that actively resent talk of environmental protection (do not care);                  (attitude:) will doubt the sustainability claims of the Allbirds x Adidas performance running shoe / perceive its price as poor value for money;                  (behaviour:) will not purchase/adopt the product / may fight against it / criticize it;</p>	<p><i>Award [1] for each of three distinct points that identify the attitude and behaviour of an <b>eco-champion</b> towards the Allbirds x Adidas mid-price ranged performance running shoe priced at around USD120.00.</i></p> <p><i>Award [1] for each of three distinct points that identify the attitude and behaviour of an <b>eco-phobe</b> towards the Allbirds x Adidas mid-price ranged performance running shoe priced at around USD120.00.</i></p> <p><i>Mark as [3] + [3]</i></p>	<p>6</p>
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Question		Answers	Notes	Total
3.	a	<p>Cyclic;</p> <p>Efficient;</p> <p>Solar;</p> <p>Safe;</p> <p>Social;</p>	<p><i>Award [1] for listing each way in which Datschefski's five principles of sustainability apply to the Steelcase Flex Perch stool up to [2 max].</i></p>	2
3.	b	<p>The seat has a leaning angle of 7.2° / relieves pressure/promotes healthy body posture/improves breathing; which provides physio-pleasure / encourages use over longer periods / provides comfort / reduces fatigue / increases alertness / encourages a sit-stand position / improves body language / fosters socio-pleasure;</p> <p>The stool weighs 3.9kg (8.5 pounds) / is lightweight; which makes it portable / users can easily rearrange seating / provides enhanced usability;</p>	<p><i>Award [1] for identifying why the Steelcase Flex Perch stool increases collaboration in the office or learning environment and [1] for a brief explanation up to [2 max].</i></p> <p><i>Note to examiners: Do <b>not</b> award marks across clusters.</i></p>	2
3.	c	<p>The Steelcase Flex Perch stool provides ideo-pleasure from satisfying people's ideals/values/tastes/beliefs;</p> <p>as it is made from electronic waste / is 100% recyclable / diverts waste from landfills/incineration / supports a circular economy / designed for flexibility/active collaboration / relieves pressure/promotes healthy posture/improves breathing / available in a range of colours / modern aesthetics;</p>	<p><i>Award [1] for identifying how a user might receive ideo-pleasure from using the Steelcase Flex Perch stool up to [2 max].</i></p>	2

<p>3.</p>	<p>d</p>	<p><b>Quality Control (QC):</b>          QC aims to detect defects/errors/ eliminate waste from defects / is a reactive approach;          it is product oriented / by conducting regular checks/tests;          to ensure that the Steelcase Flex Perch stools are designed/produced to meet or exceed requirements/expectations/standards;          to prevent defective stools from being placed on the market (that potentially endanger the consumer) / endanger their brand name;</p> <p><b>Quality Assurance (QA):</b>          QA aims to prevent/reduce defects/errors / is a proactive approach;          it is process oriented;          covers all activities from design to inspection / helps set standards of quality for all stages;          including quality of (raw) materials/production/management/inspection processes/training/delivery;</p>	<p><i>Award [1] for each of three distinct points that explain the importance of quality control (QC) for the quality management of the Steelcase Flex Perch stool.</i></p> <p><i>Award [1] for each of three distinct points that explain the importance of quality assurance (QA) for the quality management of the Steelcase Flex Perch stool.</i></p> <p><i>Mark as [2]+[3] Or [3]+[2]</i></p> <p><i>Note to examiners: Do <b>not</b> award marks across clusters.</i></p>	<p>5</p>
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Question		Answers	Notes	Total
3.	e	<p><b>Environmental:</b>                      The stool is manufactured from recycled electronic waste / is 100% recyclable;                      this conserves resources/reduces the need for extracting virgin materials / diverts waste from landfills/incineration / reduces the use of non-renewables (e.g. fossil fuels) / lowers negative environmental impact / supports a circular economy;                      it is lightweight, which reduces the energy/materials required for production and transport;                      and may lower CO<sub>2</sub> impact; <b>[max 3]</b></p> <p><b>Economic:</b>                      The stool uses recycled electronic waste which may reduce material costs / supports a circular economy;                      its lightweight design helps lower transportation costs;                      appeals to the environmentally conscious/eco-fans/office or classroom spaces which may enhance sales/profits/business growth/development/productivity;                      and creates employment (in manufacturing/recycling/sorting sectors); <b>[max 3]</b></p> <p><b>Social:</b>                      The stool encourages flexibility/active collaboration/social interaction within an office/classroom / provides socio-pleasure;                      its 7.2° angled seat relieves pressure / promotes healthy posture / improves breathing / supports comfort/ reduces fatigue/ provides physio-pleasure;                      it reduces pollution, which positively impact on public health and well-being;                      and supports ethical consumerism; <b>[max 3]</b></p>	<p><i>Award [1] for an explanation of how the environmental aspect of triple bottom line sustainability applies to the Steelcase Flex Perch stool up to [3 max].</i></p> <p><i>Award [1] for an explanation of how the economic aspect of triple bottom line sustainability applies to the Steelcase Flex Perch stool up to [3 max].</i></p> <p><i>Award [1] for an explanation of how the social aspect of triple bottom line sustainability applies to the Steelcase Flex Perch stool up to [3 max].</i></p> <p><i>Mark as [3] + [3] + [3].</i>  <i>Notes to examiners:</i>  <i>Do not award marks across clusters.</i></p> <p><i>Do not award marks for incomplete points — e.g., referencing healthy posture without linking it to the stool’s 7.2° angled seat.</i></p>	9