

Markscheme

November 2025

Design technology

Higher level

Paper 3

© International Baccalaureate Organization 2025

All rights reserved. No part of this product may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without the prior written permission from the IB. Additionally, the license tied with this product prohibits use of any selected files or extracts from this product. Use by third parties, including but not limited to publishers, private teachers, tutoring or study services, preparatory schools, vendors operating curriculum mapping services or teacher resource digital platforms and app developers, whether fee-covered or not, is prohibited and is a criminal offense.

More information on how to request written permission in the form of a license can be obtained from <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

© Organisation du Baccalauréat International 2025

Tous droits réservés. Aucune partie de ce produit ne peut être reproduite sous quelque forme ni par quelque moyen que ce soit, électronique ou mécanique, y compris des systèmes de stockage et de récupération d'informations, sans l'autorisation écrite préalable de l'IB. De plus, la licence associée à ce produit interdit toute utilisation de tout fichier ou extrait sélectionné dans ce produit. L'utilisation par des tiers, y compris, sans toutefois s'y limiter, des éditeurs, des professeurs particuliers, des services de tutorat ou d'aide aux études, des établissements de préparation à l'enseignement supérieur, des fournisseurs de services de planification des programmes d'études, des gestionnaires de plateformes pédagogiques en ligne, et des développeurs d'applications, moyennant paiement ou non, est interdite et constitue une infraction pénale.

Pour plus d'informations sur la procédure à suivre pour obtenir une autorisation écrite sous la forme d'une licence, rendez-vous à l'adresse <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

© Organización del Bachillerato Internacional, 2025

Todos los derechos reservados. No se podrá reproducir ninguna parte de este producto de ninguna forma ni por ningún medio electrónico o mecánico, incluidos los sistemas de almacenamiento y recuperación de información, sin la previa autorización por escrito del IB. Además, la licencia vinculada a este producto prohíbe el uso de todo archivo o fragmento seleccionado de este producto. El uso por parte de terceros —lo que incluye, a título enunciativo, editoriales, profesores particulares, servicios de apoyo académico o ayuda para el estudio, colegios preparatorios, desarrolladores de aplicaciones y entidades que presten servicios de planificación curricular u ofrezcan recursos para docentes mediante plataformas digitales—, ya sea incluido en tasas o no, está prohibido y constituye un delito.

En este enlace encontrará más información sobre cómo solicitar una autorización por escrito en forma de licencia: <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

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;	<i>Accept force for acceleration.</i>	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	Age / the elderly / the young / children; physical condition / users with disabilities / varied physical abilities;	<i>Award [1] for listing each of the classifications of users in relation to the plate guard up to [2 max].</i>	2
1.	b	Plate guards allow as many people as possible to use plates ; without the need for redesigning plates / without the need for adaptation or specialized design / making it easier to eat independently/comfortably / enhancing usability;	<i>Award [1] for identifying why plate guards are considered an example of inclusive design and [1] for a development up to [2 max].</i>	2
1.	c	Testing happens in a <u>controlled</u> environment; that is easier to monitor/observe/record;	<i>Award [1] for identifying one advantage of testing plate guards in a usability lab and [1] for a development up to [2 max].</i>	2
1.	d	The (retail) price was set using the <u>psychological</u> pricing strategy; to give consumers the impression of paying less / users perceive 15.99 dollars as cheaper than 16; the guard is also sold in packs of two / attaches to different sized plates; making consumers' feel it is worth the (cash/money) amount spent on it /feel they are getting a good deal;	<i>Award [1] for identifying how the pricing strategy adopted for this plate guard offers value for money for consumers. and [1] for each subsequent development up to [4 max].</i> <i>Note: Do not accept: 'value for money', or 'cheap' as an alternative for 'makes people feel they are paying less'.</i>	4

Question		Answers	Notes	Total
2.	a	<p>Helps the company stand out from its competitors / gain competitive advantage / gain brand recognition;</p> <p>encourages brand loyalty / customer loyalty / encourage customers to make repeated purchases;</p> <p>presents the company as distinctive/reliable/trustworthy/reputable/credible;</p> <p>promotes the company when placed on rooftops;</p> <p>increases sales / market share;</p>	<p><i>Award [1] for listing each of the benefits for creating a brand identity for a company selling solar water heaters up to [2 max].</i></p>	2
2.	b	<p>Imitative corporate strategy; developing/imitating existing solar water heaters;</p> <p>Product development; developing new/modified/updated solar water heaters (product families) for existing customers;</p> <p>Market development; introducing existing solar water heaters in new markets;</p> <p>Market penetration; increasing the sales of existing solar water heaters in existing markets;</p>	<p><i>Award [1] for identifying one corporate strategy that applies to solar water heater companies and [1] for a development up to [2 max].</i></p> <p><i>Note: do not award marks from different clusters.</i></p>	2

Question 2 continued

Question		Answers	Notes	Total
2.	c	<p>A product family is a group of products having common classification criteria / common parts/assemblies;</p> <p>provide users with different sizes to suit their (water heating) needs / budget / home areas / number of people per household / geographic location;</p>	<p><i>Award [1] for identifying the advantage of a product family of solar water heaters for users and [1] for a development up to [2 max].</i></p>	2
2.	d	<p>Energy security is the uninterrupted availability of energy / is energy availability at an affordable price / energy security saves on energy bills;</p> <p>Solar water heaters use solar/renewable energy to heat water;</p> <p>reducing the need for using energy from the electrical grid / from non-renewable resources (fossil fuels) /enhancing the predictability/response to changes in energy demand/supply / lowering demand (during peak hours)/outage;</p> <p>although the availability/continuity of solar energy depends on weather conditions;</p>	<p><i>Award [1] for discussing how thermal water heaters contribute to energy security and [1] for each subsequent development up to [4 max].</i></p>	4

Section B

Question		Answers	Notes	Total
3.	a	Eco-fans; Eco-champions; Eco-warriors; Ethical consumers;	<i>Award [1] for listing each type of consumers who are most likely to order groceries from Dizzie up to [2 max].</i> Note: do not accept eco-phobes.	2
3.	b	Dizzie’s business is expanding / helping big brands/grocery retailers; without their packaging/pots ending up in landfills (creating waste) / with 100% renewable materials / 100% recyclable pots / with reuseable pots (up to 100 /multiple times) / while reducing energy during transportation / while following take-back legislation;	<i>Award [1] for identifying one reason why Dizzie is an example of decoupling economic growth and negative environmental impact and [1] for a development up to [2 max].</i> Note: do not award marks for decoupling is separating economic growth and negative environmental impact as it is a repetition of the question.	2
3.	c	Dizzie's pots are cycled in a closed continuous loop / follow a cradle-to-cradle philosophy /circular economy; as they are made from renewable/recycled materials/recyclable into new pots / reusable (up to 100 times);	<i>Award [1] for identifying why Dizzie’s packaging meets Datschefski’s cyclic principle of sustainable design and [1] for a development up to [2 max].</i>	2

Question 3 continued

Question		Answers	Notes	Total
3.	d	<p>The packaging satisfies people’s values/ideologies;</p> <p>by using renewable/recyclable/recycled/reusable materials/ creating zero waste at the end of its life / reducing single-use packaging;</p> <p>it also meets their taste/aspirations/aesthetics;</p> <p>through stack-ability / free delivery / different sizes / clear labelling/colour scheme;</p> <p>triggering loyalty / satisfaction / (positive) emotional responses / repeated purchases;</p>	<p><i>Award [1] for identifying how Dizzie used ideo-pleasure to increase the sales of its packaging and [1] for each subsequent development up to [5 max].</i></p>	5
3.	e	<p>Just-in-time A production strategy that does not allocate space to the storage of components/completed items; helps Dizzie pack/prepare groceries when an order is placed; keeping groceries fresh/avoiding items becoming stale;</p> <p>Statistical process control SPC uses statistical methods to ensure production is operating at its most efficient / uses statistics to monitor/control outputs; detects defects / produces pots within the acceptable tolerances; so pots stack well / lids seal properly / pots are filled accurately;</p> <p>Value stream mapping VSM analyses the entire process from production through to delivery to the customer; identifies areas for improvement / areas where waste occurs; to reduce lead time / to ensure pots are delivered/collected on time / ensure pots are clean (before filling);</p>	<p><i>Award [1] for identifying how just-in-time maximises the value of Dizzie’s pots based on the perspective of consumers and [1] for each subsequent development of up to [3 max].</i></p> <p><i>Award [1] for identifying how statistical process control maximises the value of Dizzie’s pots based on the perspective of consumers and [1] for each subsequent development of up to [3 max].</i></p> <p><i>Award [1] for identifying how value stream mapping maximises the value of Dizzie’s pots based on the perspective of consumers and [1] for each subsequent development of up to [3 max].</i></p> <p><i>Mark as [3] + [3] + [3].</i> <i>Note: do not award marks from different clusters.</i></p>	9