

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;	<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	<p>Testing the train in the environment where it will be used;</p> <p>allows testing in different weather conditions / across different terrains/with actual train conductors/on an original track/in the mountains / comparing the ride with a diesel version / obtaining realistic feedback / not able to obtain in a usability lab;</p>	<p><i>Award [1] for one advantage of using a natural environment to test the train and [1] for a development of it up to [2 max].</i></p>	2
1.	b	<p>Physio-pleasure from the (fragrant/stir fry) smell;</p> <p>of the cooking fat (made from leftover ramen soup broth) / instead of the exhaust gases typically associated with conventional trains;</p> <p>physio-pleasure from the feel/comfort;</p> <p>of the pleasant seating/ experiencing the movement of the train;</p> <p>Do not cross clusters.</p>	<p><i>Award [1] for an instance of how Takachiho tourist train might appeal to tourists' physio-pleasure and [1] for a for a development of it up to [2 max].</i></p>	2
1.	c	<p>Micro energy sustainability involves small scale /local /individual systems / non-exhaustive/renewable/sustainable sources;</p> <p>the Takachiho tourist train serves a small community / runs on fuel from leftover ramen broth / from local restaurants / production is limited to one company refining 3000 litres per day / the use of the biodiesel in this train is the first of its kind/less environmental impact than regular biodiesel;</p>	<p><i>Award [1] for an instance of how Takachiho tourist train is an example of a micro energy sustainability and [1] for a description of it up to [2 max].</i></p>	2

1.	d	<p>Pioneering strategy A pioneering strategy is being first-to-market with a new innovation; It is the first of its kind to use bio-diesel / demands stronger investment in R&D / carries higher risk / may be perceived as more innovative by consumers / benefit from brand loyalty;</p> <p>Imitative strategy An imitative strategy develops products that are similar to existing ones; the Takachiho tourist train runs on diesel similar to existing trains / takes advantage of R&D done by others / may require lower marketing investment / builds on existing market awareness/ imitators may surpass existing products (by improving on original ideas)/ lower risk;</p>	<p><i>Award [1] for identifying a pioneering strategy and [1] for a development of it up to [2 max].</i></p> <p><i>Award [1] for identifying an imitative strategy and [1] for a development of it up to [2 max].</i></p>	4
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Question		Answers	Notes	Total
2.	a	<p>Lightweight; Include users in the design process; Accessible by all users; Made from locally sourced material/bamboo; modular; adaptable / customizable; can be folded; can be packed and relocated / easily disassembled and reassembled / safety; withstands heavy rain, wind, and high water / severe climate conditions; durable; built in collaboration;</p>	<p><i>Award [1] for identifying each user requirement of the Khudi Bari. [2 max].</i></p>	2
2.	b	<p>Participatory design includes users [from the target market] who take part in tasks / trials / involves users throughout the design and development;</p>	<p><i>Award [1] for an instance of how Architect Marina Tabassum utilised a participatory design to develop the</i></p>	2

		<p>the first three Khudi Bari were built in collaboration with families living in flood conditions/ families adapted the modular design to suit their needs / the architect continues to learn from these families / used feedback to make iterations / the architect's housing solution considers user behaviour;</p>	<p><i>Khudi Bari. and [1] for a development up to [2 max].</i></p>	
2.	c	<p>Just in case A situation where a company keeps a stock of components just in case of a rush order/flood; this involves storage/inventory/ higher costs related to excess material and storage; so they can respond to demands quickly in such a flood prone area;</p> <p>Just in time A situation where a firm does not allocate space to the storage of components or completed items; using locally sourced bamboo; only producing what has been ordered / lower costs / means materials can be ordered (or manufactured) when required / may not be sufficient to meet those sudden changes in demand (in a flood prone area) /as it could be too late if components need to be delivered;</p>	<p><i>Award [1] for identifying a Just in case production strategy with regards to tiny homes and [1] for each development of it up to [3 max].</i></p> <p><i>Award [1] for identifying a Just in time production strategy with regards to tiny homes and [1] for each development of it up to [3 max].</i></p> <p><i>Mark as [3] + [3]</i></p>	6

Section B

Question		Answers	Notes	Total
3.	a	<p>Just in time supplies; Highly trained / multiskilled workforce; Quality control; Continuous improvement / Kaizen; Zero defects / minimizing waste; Zero inventory;</p>	<p><i>Award [1] for identifying each characteristic of lean production. [2 max].</i></p>	2
3.	b	<p>Lead time is the time between the initiation and the execution of a process / time between ordering and receiving / length of manufacturing time;</p> <p>the short lead time allows fast fashion to quickly respond to trends / to produce garments within a few days / to bring the designs to retail whilst demand is at its peak / to mass produce / to sell at a low cost/ to bring clothing to the customer as fast as possible;</p>	<p><i>Award [1] for defining lead time and [1] for a brief explanation in relation to fast fashion [2 max].</i></p>	2
3.	c	<p>Psychological pricing strategy gives consumers the impression they are paying less / receiving good value-for-money / paying .99 compared to \$.00;</p> <p>through ads/discounts/promotions/trends on social media/ encouraging impulse buying/overconsumption / reaching a large internet based market;</p>	<p><i>Award [1] for identifying psychological pricing, [1] for a brief explanation relating to fast fashion’s push for social media users to buy more products. up to [2 max].</i></p>	2

Question 3 continued

Question		Answers	Notes	Total
3.	d	<p>Brand loyalty is where a person has a favourite/trusted supplier; and prefers to buy products from them rather than from other suppliers;</p> <p>fast fashion's low prices / ability to follow social media trends / ability to produce garments quickly / low lead time;</p> <p>encourages consumers to buy more / overconsume / make repeated purchases; and promote /spread the word about the brand;</p>	<p><i>Award [1] for each of five distinct points in an explanation of how brand loyalty can boost fast fashion clothing sales. [5 max].</i></p>	5
3.	e	<p>Cyclic Cyclic refers to materials recycled in a closed continuous loop / cradle-to-cradle; the fast fashion waste is discarded into landfills / should not end up in landfills; instead be made from compostable/organic/recyclable/reusable materials;</p> <p>Safe Safe refers to products that are non-toxic during use/disposal; the fast fashion textiles are synthetic / include microplastics that enter the water supply during production; instead all releases to air, water, land or space should be “food” for other systems;</p> <p>Social Social refers to products whose manufacture and use support basic human rights and natural justice; the fast fashion has lowered labour cost / manufactures quickly at low cost; instead they should support higher wages/local communities / provide safer working conditions / support ethical consumerism;</p>	<p><i>Award [1] for each of 3 distinct points in how fast fashion could use Datschefski’s principle of cyclic. [3 max].</i></p> <p><i>Award [1] for each of 3 distinct points in how fast fashion could use Datschefski’s principle of safe. [3 max].</i></p> <p><i>Award [1] for each of 3 distinct points in how fast fashion could use Datschefski’s principle of social. [3 max].</i></p> <p><i>Mark as [3] + [3] + [3].</i></p>	9