Sample IB Design Technology question paper

Practice paper in the style of the new 2027 syllabus · Standard Level · 20 marks · 30 minutes

Name: _____ Class: _____ Mark: _____ / 20

Answer all questions. For Section A choose one answer. For Section B write your answers in the space provided.

Section A (10 marks)

1. The Phoebus cartel deliberately reduced the lifespan of light bulbs (Figure 1) sold to consumers in the 1920s. This is a widely-cited example of:



Figure 1: a plain incandescent light bulb

A. Style obsolescence
B. Technological obsolescence
C. Planned obsolescence
D. Functional obsolescence

2. Which of the following best explains why designers use ISO or other international standards when developing a new product?

A. To reduce the number of colours available
B. To ensure a consistent framework for user safety and quality
C. To guarantee the product will never become obsolete
D. To increase the retail price of the product

3. The rapid replacement of basic mobile phones by smartphones with far more advanced features (Figure 2) is best described as:



Figure 2: a basic mobile phone next to a modern smartphone

A. Style obsolescence
B. Technological obsolescence
C. Planned obsolescence
D. Functional obsolescence

4. A company switches to recycled packaging even though it slightly increases production cost, in order to reduce landfill waste. This decision reflects a trade-off between which two elements of the triple bottom line (TBL)?

A. People and Profit
B. People and Planet
C. Profit only
D. Planet and Profit

5. Which of the following correctly lists the five stages of the design thinking process in order?

A. Define, Empathize, Model, Ideate, Present
B. Empathize, Define, Ideate, Design, Present
C. Ideate, Empathize, Define, Present, Design
D. Present, Design, Ideate, Define, Empathize

6. A designer asks the focus group members in Figure 3, “How does this backpack make you feel when you wear it?” This type of question is designed to collect:



Figure 3: a small focus group discussing a product

A. Qualitative data
B. Quantitative data
C. Secondary data
D. A design specification

7. A designer reviews government statistics on the average adult shoulder width before designing a new backpack. This is an example of:

A. Primary research
B. Secondary research
C. A persona
D. A problem statement

8. Which of the following best describes the purpose of creating a persona during the empathize stage of the design process?

A. To calculate the manufacturing cost of a product
B. To represent a group of end-users and guide design decisions
C. To test a product's mechanical properties
D. To identify a secondary research source

9. A design specification, unlike a problem statement, must:

A. Describe the current situation only

B. Summarize the designer's personal biography

C. List only qualitative research methods used

D. State essential and desirable requirements for the solution

10. Designers use a storyboard like the one in Figure 4 to:



Figure 4: a storyboard showing the steps of using a rice cooker

A. Calculate the time taken to cook the rice

B. Map a user's journey and identify pain points in a task

C. Test the position of buttons

D. Listen to users for new ideas

Section B (10 marks)

11. The Goplay Roadster is a toy car designed for a young child to play with every day. It is built as a single, solid piece with no glued sections or seams. Its surface is sanded smooth and finished with a non-toxic coating. If a wheel eventually wears out, only the bearing needs to be replaced, not the whole toy.

The wheels are fixed with axles that cannot be pulled off, and there are no small, detachable parts. The car has no batteries or electronic components and is 28 cm long.



Figure 5: The Goplay Roadster, an heirloom wooden toy car

(a) Explain one feature the designer has included to protect young children when playing with the toy. **[3]**

(b) Explain one feature the designer has included to reduce the risk of the product becoming obsolete. **[3]**

(c) Explain how the Roadster's design reflects the designer's responsibility across two elements of the triple bottom line (TBL). **[4]**

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Section A

Question	1	2	3	4	5	6	7	8	9	10
Answer	C	B	B	D	B	A	B	B	D	B

Each correct answer scores [1].

Section B

11(a) [3 marks]

Award [1] for the feature and up to [2] for explanation, e.g.

• Axles cannot be pulled off / no small detachable parts ✓ so a child cannot swallow or choke on a loose piece ✓ reducing the risk of injury ✓

• Surface sanded smooth ✓ so there are no splinters or sharp edges ✓ preventing cuts when handled ✓

• Non-toxic coating ✓ safe if the child chews or mouths the toy ✓ so no harmful chemicals are swallowed ✓

• Single solid piece with no seams ✓ nothing can break apart or trap small fingers ✓

• No batteries or electronics ✓ no risk of swallowing button cells, leaks or overheating ✓

Notes: [3 max]. Feature must be taken from the case.

11(b) [3 marks]

Award [1] for the feature and up to [2] for explanation, e.g.

• Replaceable bearing ✓ only the worn part needs replacing, not the whole toy ✓ so the product lasts longer and stays useful ✓

• Durable single solid piece of wood ✓ resists breakage over years of play ✓ so it can be passed on (heirloom) ✓

• No batteries or electronics ✓ cannot be made technologically outdated by new technology ✓ and does not stop working when parts fail ✓

• Classic, simple form ✓ unlikely to go out of fashion ✓ so it avoids style obsolescence ✓

Notes: [3 max].

11(c) [4 marks]

Award up to [2] for each TBL element, i.e. [1] for identifying the element linked to a feature and [1] for the explanation, e.g.

• People: smooth, non-toxic, no small parts ✓ protects the health and safety of the child and gives parents peace of mind ✓

• Planet: solid wood, repairable with a replaceable bearing ✓ the toy is used for longer, so fewer resources are used and less waste is sent to landfill ✓

• Profit: durable, heirloom quality ✓ justifies a higher price and builds brand trust and repeat/gift sales ✓

Notes: [4 max]. Two different TBL elements are required; award no more than [2] for one element.

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