



**DESIGN TECHNOLOGY  
STANDARD LEVEL  
PAPER 1**

Wednesday 17 November 2004 (afternoon)

45 minutes

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**INSTRUCTIONS TO CANDIDATES**

- Do not open this examination paper until instructed to do so.
- Answer all the questions.
- For each question, choose the answer you consider to be the best and indicate your choice on the answer sheet provided.

1. The design brief can be described as
  - I. A short statement giving the general outline of the problem to be solved
  - II. The formal starting point for the design of a product
  - III. The design solution
  - A. I and II
  - B. II and III
  - C. I and III
  - D. I, II and III
  
2. Incremental design results in
  - A. the wide acceptance of a product.
  - B. a design that accounts for environmental impacts throughout the product life cycle.
  - C. a totally new solution to the design of a product.
  - D. a new design based on previous product development(s).
  
3. Designers would use a full-size clay model of a car for
  - A. generating ideas.
  - B. product testing.
  - C. brainstorming.
  - D. market research.
  
4. The IB simple design cycle is unrepresentative of design thought and action because
  - A. it is a linear model.
  - B. it is a small cycle.
  - C. it does not represent iteration.
  - D. it emphasizes the importance of communication.

5. An algorithm is
- A. a pictorial representation of a sequence of events.
  - B. a physical model.
  - C. a sequence of instructions to describe a set of actions.
  - D. an algebraic equation.
6. Designers use mathematical models to
- A. communicate design concepts to consumers.
  - B. see how big the final solution will be.
  - C. completely finalize their solution.
  - D. represent selected features of a design.
7. Which drawing technique shows **most** evidence of convergent thinking?
- A. Perspective
  - B. Orthographic
  - C. Isometric
  - D. 3-D sketch
8. Anthropometrics is the study of
- A. body measurements.
  - B. human relationships with objects, systems and environments.
  - C. consumer preferences.
  - D. human actions.

9. Designers would use ergonomes with
- A. orthographic drawings of the same scale.
  - B. isometric drawings of the same scale.
  - C. prototypes.
  - D. physical models of the same scale.
10. For which aspect of a product would a designer use the 50th percentile range?
- A. The height of a washing machine
  - B. The position of switches on the control panel of a car
  - C. The length of sports shoes
  - D. The height of a door
11. Fashion influences product design in relation to
- A. function.
  - B. style.
  - C. size.
  - D. manufacturing.
12. Relating the cost of a product to what it is worth is called
- A. cost-effectiveness.
  - B. performance testing.
  - C. product evaluation.
  - D. value for money.

13. The material used to manufacture steel suspension cables for a bridge should have high
- A. hardness.
  - B. tensile strength.
  - C. stiffness.
  - D. toughness.
14. Which material group is subdivided into vegetable or animal origins?
- A. Plastics
  - B. Composites
  - C. Food
  - D. Textiles
15. What material group has medium density, low tensile strength and very high stiffness?
- A. Ceramics
  - B. Plastics
  - C. Food
  - D. Timber
16. Which technique is an example of wasting?
- A. Fusing
  - B. Machining
  - C. Stitching
  - D. Sintering

17. Which property combines with toughness to make a material suitable for extrusion?
- A. Ductility
  - B. Tensile strength
  - C. Thermal expansivity
  - D. Thermal conductivity
18. Which technique fuses solid particles with heat and pressure without completely liquefying them?
- A. Injection moulding
  - B. Casting
  - C. Sintering
  - D. Lamination
19. What is a disadvantage of lamination?
- A. Combining different materials
  - B. A mould may be required
  - C. Complexity of formed shapes
  - D. No finishing required
20. Within the product cycle designers are
- A. in complete control.
  - B. in control of marketing.
  - C. involved but not necessarily in complete control.
  - D. not involved.

21. The factor that determines how fixed costs are reflected in the final cost of a product is the

- A. design brief.
- B. breakeven point.
- C. raw material costs.
- D. distribution costs.

22. Automation involves

- A. humans controlling machines for volume production.
- B. assembly lines to organize work patterns.
- C. computers controlling machines for volume production.
- D. maintenance free production systems.

23. A CNC system is used for

- A. manufacturing.
- B. designing.
- C. storing.
- D. testing.

24. An environmental impact assessment matrix can be used to assess the

- A. product cycle.
- B. design cycle.
- C. product life cycle.
- D. water/air cycle.

25. Which strategies relate to packaging design?

- I. Recycle
- II. Reuse
- III. Repair

- A. I and III
- B. I and II
- C. II and III
- D. I, II and III

26. Clean technology legislation can be policed by monitoring through

- A. data from user research.
- B. data from user trials.
- C. qualitative data.
- D. quantitative data.

27. Which combination of consumer pressure and legislation provides the impetus for green design?

|   | <b>Consumer Pressure</b> | <b>Legislation</b> |
|---|--------------------------|--------------------|
| A | ✓                        | ✓                  |
| B | X                        | ✓                  |
| C | ✓                        | X                  |
| D | X                        | X                  |

28. What encourages consumers to select “greener” products?
- I. Advertising
  - II. Ecolabelling
  - III. Wider availability of green products
- A. I and II
  - B. II and III
  - C. I and III
  - D. I, II and III
29. Financial benefits for the proactive adoption of an environmental policy by a manufacturer are **least** likely to be achieved through
- A. avoidance of fines.
  - B. reduced energy utilization.
  - C. use of recycled materials.
  - D. more efficient use of raw materials.
30. Designing a computer to allow upgrading of the central processing unit is an example of which strategy for green design?
- A. Repair
  - B. Reuse
  - C. Recondition
  - D. Recycle
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