

**DESIGN TECHNOLOGY
STANDARD LEVEL
PAPER 1**

Friday 7 November 2003 (afternoon)

45 minutes

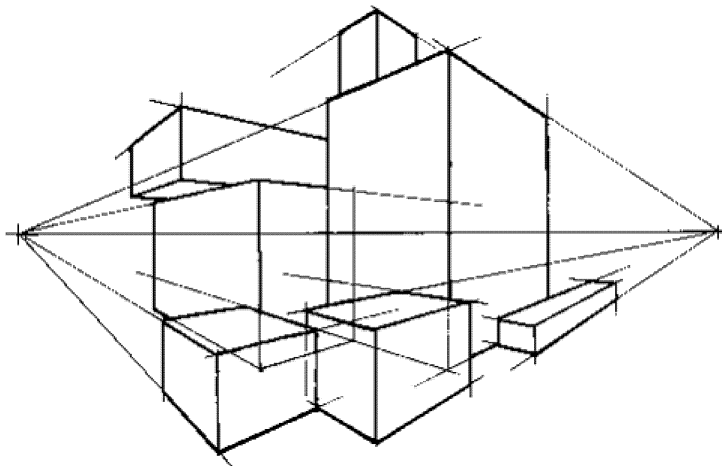
INSTRUCTIONS TO CANDIDATES

- 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. What is the formal starting point for the design of a new product?
 - A. The client
 - B. The manufacturer
 - C. The brief
 - D. The specification

2. Which term describes the analysis of a design's problem and redesigning an improved solution?
 - A. Constructive discontent
 - B. Convergent thinking
 - C. Divergent thinking
 - D. Analytical thinking

3. What is the following picture an example of?



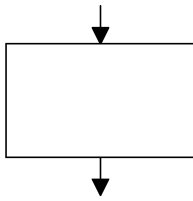
- A. Isometric drawing
- B. Annotated freehand drawing
- C. Perspective drawing
- D. Orthographic drawing

4. A mathematical model uses

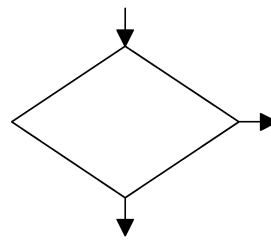
- A. materials.
- B. processes.
- C. products.
- D. symbols.

5. Which symbol would be used to represent a decision in a flow chart?

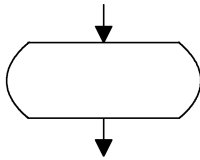
A.



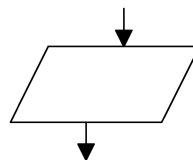
B.



C.



D.



6. Where, in the IB elaborated design cycle, does evaluation take place?

- A. At the end
- B. When developing a solution
- C. Throughout the cycle
- D. When realizing a chosen solution

7. At which point in the IB simple design cycle would orthographic drawings be produced?
- A. Researching and specification
 - B. Generating ideas
 - C. Developing the chosen solution
 - D. Planning and realizing the chosen solution
8. In which design context would the designer consider mainly the 50th percentile?
- A. Washing machines
 - B. Clothes
 - C. Aircraft cockpit design
 - D. Shoes
9. Which concept takes account of the relationship between what a product is worth and the amount of money spent on it?
- A. Cost-effectiveness
 - B. Value for money
 - C. Overheads
 - D. Material costs
10. What advantage does planned obsolescence have for the manufacturer?
- A. Reduced value of the product
 - B. Less frequent replacement of products
 - C. Increased wealth from sales
 - D. Increased research and development

11. What is a disadvantage of using a performance test to collect data?

- A. Very accurate data
- B. Safety of users
- C. Largely qualitative data
- D. Costly in time and money

12. Which combination of predictability and timescale characterises fashion?

	Predictability	Definite Timescale
A.	Yes	No
B.	Yes	Yes
C.	No	No
D.	No	Yes

13. Which is a physical property of a material?

- A. Density
- B. Tensile strength
- C. Toughness
- D. Stiffness

14. In which design context would the thermal expansion of glass be a major consideration?

- A. The glass window in the metal door of a conventional oven
- B. The glass window in the metal door of a microwave oven
- C. A window unit
- D. A wine bottle

15. Which property of food is of least relevance to consumers?
- A. Density
 - B. Colour
 - C. Texture
 - D. Electrical resistivity
16. Which is a manufacturing technique?
- A. Shaping
 - B. Injection moulding
 - C. Joining
 - D. Wasting
17. In which manufacturing technique is a thicker piece of material produced by joining thinner pieces with adhesive?
- A. Sintering
 - B. Extrusion
 - C. Joining
 - D. Lamination
18. Which manufacturing technique is used to make plastic pipes?
- A. Machining
 - B. Extrusion
 - C. Injection moulding
 - D. Fusing

19. Which combination of hardness and toughness make a material suitable for use as a cutting and machining tool?

- | | Hard | Tough |
|----|-------------|--------------|
| A. | Low | High |
| B. | High | Low |
| C. | High | High |
| D. | Low | Low |

20. Which term describes the use of computers for designing?

- A. CAM
- B. CNC
- C. CIM
- D. CAD

21. Which product is in the early stages of its product life cycle?

- A. Domestic robot
- B. Calculator
- C. Ball point pen
- D. Personal computer

22. What is an advantage, to the manufacturer, of automating a production system?

- A. Increased variable costs
- B. More consistent quality
- C. Increased labour costs
- D. Negative effect on the workforce

23. Which are variable costs?
- A. Design costs
 - B. Research and development costs
 - C. Material costs
 - D. Overhead costs
24. Which term is defined as an approach to improving a manufacturing process which aims to reduce environmental impact?
- A. Clean technology
 - B. Planned obsolescence
 - C. Life cycle analysis
 - D. Green design
25. Which consideration does **not** form part of an environmental assessment?
- A. Water usage
 - B. Aesthetics
 - C. Pollution
 - D. Energy consumption

26. At which point in the product life cycle is the following symbol most relevant?



- A. Production
 - B. Distribution
 - C. Utilization
 - D. Disposal
27. Which is **not** a design objective for green products?
- A. Cost effectiveness
 - B. Efficient use of materials
 - C. Minimizing noise
 - D. Accounting for the end disposal of the product
28. What is defined as the assessment of the effect a product has on the environment from concept to disposal?
- A. Product cycle
 - B. Life cycle analysis
 - C. Product evaluation
 - D. Design cycle

29. Which technique for joining metal parts together promotes ease of maintenance?
- A. Fusing
 - B. Sintering
 - C. Screwing
 - D. Glueing
30. What describes a company that voluntarily modifies its entire manufacturing process to adopt clean technologies?
- A. Reactive - Incremental
 - B. Proactive - Radical
 - C. Reactive - Radical
 - D. Proactive - Incremental
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