Design and Technology

General Instructions
• Reading time – 5 minutes
• Working time – 1½ hours
• Write using black or blue pen
• Write your Centre Number and Student Number at the top of page 5

Total marks – 40

Section I Pages 2–4
10 marks
• Attempt Questions 1–10
• Allow about 15 minutes for this section

Section II Pages 5–7
15 marks
• Attempt Questions 11–14
• Allow about 35 minutes for this section

Section III Page 9
15 marks
• Attempt Question 15
• Allow about 40 minutes for this section
Section I

10 marks
Attempt Questions 1–10
Allow about 15 minutes for this section

Use the multiple-choice answer sheet for Questions 1–10.

1 Why do Occupational Health and Safety practices need to be followed in a workplace?
   (A) To provide employees with a safe workplace
   (B) To ensure that employees are healthy in their workplace
   (C) To ensure that someone is trained as a first aid officer in all workplaces
   (D) To give employees an opportunity to complain to management about an unsafe workplace

2 Which of the following best describes the ergonomic feature of a product?
   (A) It has a good shape and fit.
   (B) It is easy to work with and use.
   (C) It uses appropriate colour standards.
   (D) It requires minimum force to operate.

3 As a product approaches the end of its life cycle, what factor contributes most to its decline in acceptance?
   (A) Poor design
   (B) New materials
   (C) Shifting social trends
   (D) Changing manufacturing techniques

4 A delay in completing a design project is most likely to be caused by
   (A) poor timing.
   (B) poor planning.
   (C) lack of finance.
   (D) lack of resources.
After developing a preliminary design concept, what would a designer do next?

(A) Gather market research
(B) Develop a technical illustration
(C) Develop possible design solutions
(D) Decide on manufacturing and production techniques

What is the main purpose of developing sustainable technologies?

(A) To reduce landfill
(B) To have longer lasting products
(C) To make better use of natural resources
(D) To reduce the amount of materials used

The following graphs show the results of market research about four target markets, A, B, C and D. Market size, disposable income and fear of technologies were investigated for each target market.

For which target market would a producer develop a next generation high-tech product?

(A) A
(B) B
(C) C
(D) D
8 Which of the following best outlines an entrepreneur’s activities in influencing the success of an innovation?

(A) Examining durability and cultural factors
(B) Analysing market research, legal and ethical issues
(C) Analysing industry standards and production issues
(D) Determining production costs and time management issues

9 The evaluation of a product involves an examination of its features and/or functions. Why is it necessary to conduct this evaluation?

(A) To ensure that the greatest number of the product will sell
(B) To determine whether the product is aesthetically pleasing
(C) To ensure that the product performs all of its desired operations
(D) To determine whether the product is a quality solution to the design problem

10 Why does a designer need to consider the industrial and commercial practices that will be used during manufacturing?

(A) To ensure the product will sell
(B) To gain access to cheaper resources
(C) To increase the product’s rate of production
(D) To produce products that meet market needs
Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Question 11 (2 marks)
Outline forms of communication used by designers.
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Question 12 (3 marks)
Describe factors a designer would consider when designing signage for a school.
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Question 13 (4 marks)

Research is important in the early stages of designing a new product.

Explain the factors a designer would need to consider when interpreting and applying research data.
Question 14 (6 marks)

How does the selection of presentation techniques influence the communication of a design idea to a client?
Question 15 (15 marks)

(a) How has the emergence of new technologies impacted upon the nature of work? 6

(b) Analyse how designers use available and emerging technologies to innovate and further develop designs. 9

End of paper