

Please write clearly in block capitals.

School _____

Class _____

Name _____

Teacher _____

GCSE DESIGN AND TECHNOLOGY

DESIGN & TECHNOLOGY

Design and Technology · Written paper · 2019 original GCSE practice set

Suggested practice time: 2 hours

Materials

For this paper you must have:

- a pen.
- a calculator (where appropriate).
- no other materials are required.

Instructions

- Answer all questions in the spaces provided.
- Use black ink or black ball-point pen.
- Show your working where calculations are required.
- All questions and materials in this paper are original works written for practice and do not reproduce any real exam content.

Information

- The maximum mark for this paper is 100.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English and clear presentation.

For Examiner's Use	
Question	Mark
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TOTAL	

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Answer all questions in the spaces provided.

1 Section A: Core technical principles

Answer all questions in this section.

1.1 Which is a thermoforming polymer that can be reshaped by heating? Shade one box. A Epoxy resin B Acrylic (PMMA) C Melamine D Urea formaldehyde.

A ☐ B ☐ C ☐ D ☐

[1 mark]

2.1 Which paper/board is best for modelling a 3D product? Shade one box. A Tracing paper B Foam board C Bleed-proof paper D Layout paper.

A ☐ B ☐ C ☐ D ☐

[1 mark]

3.1 Which represents the '6 Rs' of sustainability? Shade one box. A Reduce, reuse, recycle, refuse, rethink, repair B Run, race, rest... C Read, write... D none.

A ☐ B ☐ C ☐ D ☐

[1 mark]

4.1 Define the term 'ergonomics'.

[2 marks]

5.1 Give two ways a designer could reduce the environmental impact of a product.

[2 marks]

6.1 Describe how a mechanical advantage can be gained using a lever.

[3 marks]

7**Section B: Specialist technical principles****Answer all questions in this section.****7.1**

Explain two factors a designer must consider when selecting a material for a product.

[4 marks]

8.1

Explain how the '6 Rs' could be applied to the design of a new product.

[5 marks]

9.1

Explain two ways a designer could make a product more sustainable, and one drawback of each.

[6 marks]

10**Section C: Designing and making principles****Answer all questions in this section.****10.1**

A client needs a desk organiser for stationery. Write a short design brief for this product.

[4 marks]

11.1

Produce two different design ideas (described in words and notes) for the product in the brief above.

[6 marks]

12.1

Explain, with reference to materials and processes, how your chosen product would be manufactured.

[8 marks]

13.1

Evaluate the use of new and emerging technologies (such as 3D printing) in designing and making products.

[9 marks]

14.1

Discuss the impact of design and technology on the environment and society, and how designers can respond responsibly.

[12 marks]

15**Section B (continued)****Answer all questions in this section.****15.1**

Describe two properties of metals that make them useful in product design.

[3 marks]

16.1

Explain how a designer could use anthropometric data when designing a chair.

[4 marks]

17.1

Explain how a gear train can be used to change speed in a product.

[5 marks]

18.1

Explain two ways modern manufacturing has reduced waste in industry.

[6 marks]

19.1

Explain two reasons why a designer carries out research before designing a product.

[6 marks]

20.1

Explain, with reasons, the materials and processes you would choose to manufacture a small desk product in batches of 500.

[8 marks]

21.1

Explain two reasons why designers test products against a specification.

[4 marks]

Do not
write
outside the
box

END OF QUESTIONS