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|----------------|---------------|------------------|
| Candidate Name | Centre Number | Candidate Number |
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WELSH JOINT EDUCATION COMMITTEE
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Gyffredinol Addysg Uwchradd

272/01

**GCSE
DESIGN AND TECHNOLOGY**

SHORT COURSE

FOCUS AREA: RESISTANT MATERIALS TECHNOLOGY

(Foundation Tier - Grades G to C)

P.M. TUESDAY, 5 June 2007

(1 Hour)

| | |
|-------------------|------------------------|
| | Leave Blank |
| Question 1 | |
| Question 2 | |
| Question 3 | |
| Question 4 | |
| TOTAL MARK | |

ADDITIONAL MATERIALS

You will need basic drawing equipment and coloured pencils for this examination.

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Where the space is not sufficient for your answer, continue the answer at the back of the book, taking care to number the continuation correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

Answer **all** questions in the spaces provided.

1. (a) A designer needs to carry out research before designing a new toy for a three-year-old child.



Draw a line to match the **research activity** with the **information found**.
One has been done for you.

3 × [1]

| Research Activity | Information found |
|--|------------------------------|
| Look at tables of children's sizes | What children can do |
| Read a book on child development | Size of children's hands |
| Look at a materials properties website | Find the most popular colour |
| Talk to a three-year-old child | Safety of materials |

- (b) Give **three** safety concerns that a parent may have when buying a toy.

3 × [2]

Concern 1:

.....

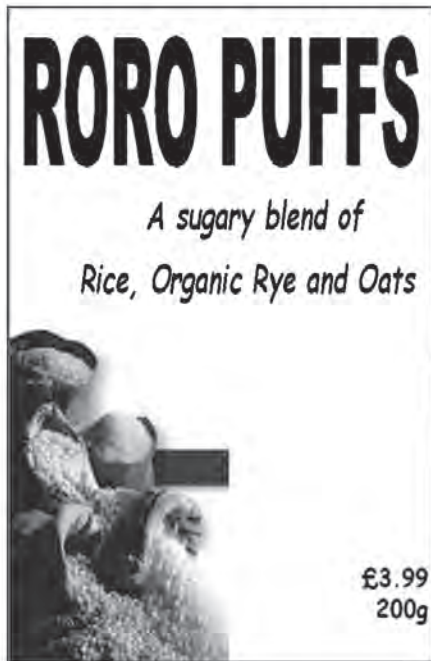
Concern 2:

.....

Concern 3:

.....

2. Sales of the breakfast cereal shown below are falling.



| | | | |
|--|------------------------|------------------------|--------------------------|
| Ingredients: Rice, rye, oats, honey, sugar, salt. | | | |
| | Guideline daily amount | Each serving with milk | % guideline daily amount |
| Calories | 2000kcal | 170kcal | 8% |
| Sugar | 90g | 27.8g | 30% |
| Salt | 6g | 0.8g | 14% |
| Saturated fat | 20g | 2.4g | 12% |
| Fat | 70g | 4.0g | 6% |

(a) **Study** the pictures shown and **give two** reasons why you think sales of this cereal have fallen. 2 × [2]




Reason 1:

.....

Reason 2:

.....

(b) The pictures below show three kettles.

| | | | |
|----------------|---|---|---|
| |  |  |  |
| Kettle | A | B | C |
| Cost | £4.99 | £19.99 | £37.99 |
| Materials | White Plastic | Stainless Steel | Colour Changing Plastic |
| Where made | China | Europe | UK |
| Water capacity | 1.5 Litres | 1 Litre | 2.3 Litres |

(i) **State** which kettle holds the most water. [1]

.....

(ii) **State** which kettle you think is the easiest to use and **give two** reasons for your choice. $2 \times [1]$

Kettle is easiest to use.

Reason 1:

.....

Reason 2:

.....

(iii) Even though it is expensive, some people would decide to buy kettle C. **Give one** reason for this. [2]

.....

.....

(iv) **State** the price of kettle A. [1]

.....

(v) **Give two** reasons why kettle A can be sold at this price. $2 \times [2]$

Reason 1:

.....

Reason 2:

.....

3. (a) One part of the design process is called *development*. Place a **tick** (✓) next to the **three** activities that are part of *development*. 3 × [1]

| | |
|---|--|
| Test the finished product. | |
| Decide on final sizes. | |
| Try out different materials and finishes. | |
| Think about possible ways to join parts together. | |
| Draw initial ideas for the product. | |

- (b) **Describe two** ways in which ICT/CAD could be used to help with the development of a new product. 2 × [2]

(I)

.....

(II)

.....

- (c) For a product of your choice, **describe two** benefits of using CAM (computer aided manufacturing) to make the product. 3 × [1]

Product:

Benefit 1:

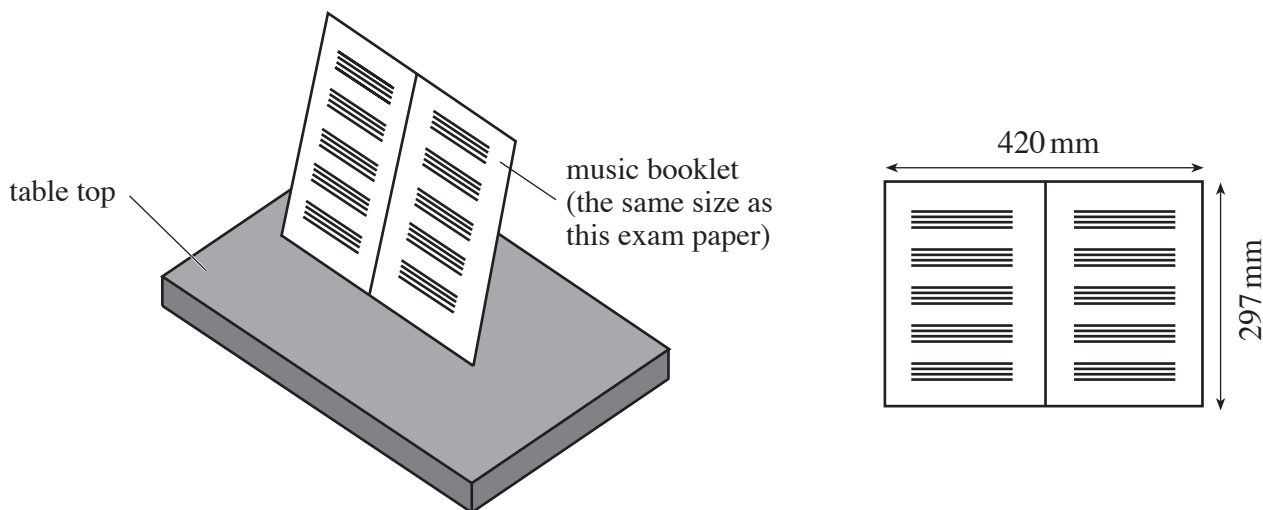
Benefit 2:

- (d) **Describe one** environmental issue that should be taken into account when *designing* products. [2]

.....

.....

4. The music department in your school has asked you to design a portable table top stand to hold sheet music for use when playing instruments.



Specification

The design must:

- be portable, stable and suitable for table top use;
- hold an A4 music booklet;
- enable the music to be easily read when playing an instrument.

(a) **Sketch** your solution on the opposite page.

Marks will be awarded for:

- | | |
|--|-----|
| (i) the design of a stand that is stable; | [4] |
| (ii) full details of how the stand is constructed; | [6] |
| (iii) showing how the sheet music stays securely in place; | [3] |
| (iv) two important dimensions; | [2] |
| (v) quality of communication. | [5] |

Turn over for part (b)

(b) **Name** a material you have used in the design of your music stand and give **two** reasons why this material is suitable.

Material: [1]

Reason 1:

..... [2]

Reason 2:

..... [2]

