

Tuesday 29 May 2012 – Afternoon

GCSE DESIGN AND TECHNOLOGY Graphics

A532/01 Sustainable Design

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

None

Duration: 1 hour



| | | | |
|-----------------------|--|----------------------|--|
| Candidate forename | | Candidate surname | |
|-----------------------|--|----------------------|--|

| | | | | | | | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre number | | | | | | Candidate number | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions in **Section A and Section B**.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- This document consists of **12** pages. Any blank pages are indicated.

Section A

Answer **all** questions.

You are advised to spend 15 minutes on this section.

On questions 1–5 **circle** your answer.

- 1** One type of recycling is to:
- (a) Store renewable materials
 - (b) Not use toxic materials
 - (c) Throw materials away
 - (d) Break down and reuse materials
- [1]**
- 2** Tidal power generates energy from the:
- (a) Sea
 - (b) Clouds
 - (c) Earth
 - (d) Sun
- [1]**
- 3** Which of the following is the most difficult to recycle:
- (a) Corrugated cardboard
 - (b) Shredded paper
 - (c) Bubble wrap
 - (d) Wood shavings
- [1]**
- 4** To reuse a product means:
- (a) To throw it away
 - (b) To use it again
 - (c) Not use it again
 - (d) Mend it when it is broken
- [1]**

5 The symbol shown below means that Aluminium can be:



- (a) Thrown away
- (b) Returned
- (c) Repaired
- (d) Recycled

[1]

6 State the meaning of the Green Dot symbol.

..... [1]

7 Which of the 6Rs describes when we fix or mend a product?

..... [1]

8 The internationalisation of products is also known as

..... [1]

9 State the meaning of biodegradeable.

..... [1]

10 Nanotechnology is the science of

..... [1]

4

Decide whether each of the following statements is **true** or **false**.
Tick (✓) the box to show your answer.

True

False

- | | | | | |
|-----------|-----------------------------------------------------------------------------------------------|--------------------------|--------------------------|-----|
| 11 | All plastics are easily recycled | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 12 | Vegetable based printing inks are less harmful to the environment than solvent based inks | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 13 | Ethical trade initiatives support workers | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 14 | Refilling a water bottle has a negative impact on the environment | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 15 | Built in obsolescence means that a product has been designed to last a certain period of time | <input type="checkbox"/> | <input type="checkbox"/> | [1] |

Total [15]

Section B

Answer **all** questions.

You are advised to spend 45 minutes on this section.

16 Fig.1 shows a pencil crayon box.

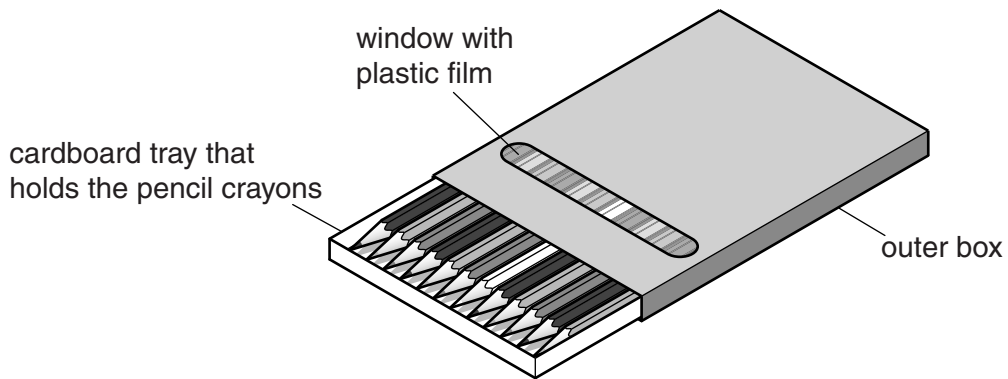


Fig. 1

(a) The manufacturer of the pencil crayon box wants to reduce the amount of material used.

(i) Give **four** reasons why this would be beneficial to the environment.

- 1
 - 2
 - 3
 - 4
- [4]

(ii) State **one** reason why this would be beneficial to the manufacturer.

-
 -
- [2]

6

- (b) Use sketches and notes to show how the design of the pencil crayon box could be modified to reduce the amount of material(s) used.

The design should include **two** or more modifications.

[4]

(c) Fig. 2. shows a symbol embossed onto the window of the pencil crayon box.



Fig.2

Name the symbol shown in Fig. 2

..... [1]

(d) Using examples from the pencil crayon box, explain the following terms:

Primary Recycling

.....

.....

.....

Tertiary Recycling

.....

.....

..... [4]

Total [15]

17 Fig. 3 shows a daily newspaper.



Fig. 3

(a) The newspaper is printed using low VOC inks.

(i) State what the initials VOC stand for.

..... [1]

(ii) Give **two** reasons why low VOC inks could be used.

1

.....

.....

.....

2

.....

.....

..... [4]

(b) The manufacturer of the newspaper must comply with COSHH regulations. Using examples, explain the purpose of COSHH regulations.

.....

.....

.....

.....

.....

..... [4]

- (c) Complete the table below to show a Risk Assessment that the manufacturer of the newspaper might carry out.

The first one has been done for you.

| Potential Hazard | Solution |
|-----------------------------------------------------------|-----------------------------------------------------------------------|
| <i>Poisoning from spilt toxic solutions and chemicals</i> | <i>No eating or drinking in the workshop to prevent contamination</i> |
| | |
| | |
| | |

[6]

Total [15]

18 Fig. 4 shows a music CD and case.

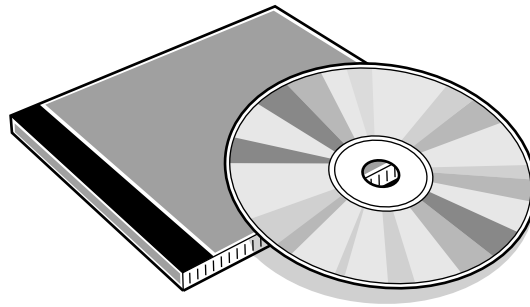


Fig. 4

(a) Give **one** reason why CD's are difficult to recycle.

..... [1]

(b) Give **three** ways a consumer can reduce the need for using CD's.

1

2

3 [3]

(c) State **two** suitable reuses for an unplayable CD.

1

2 [2]

(d) Graphic products can be manufactured in developing countries.

Describe the social benefits of manufacturing in a developing country.

.....

.....

.....

.....

.....

..... [3]

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