



GENERAL CERTIFICATE OF SECONDARY EDUCATION
DESIGN AND TECHNOLOGY
 Industrial Technology
 Sustainable Design

A542

Thursday 17 June 2010
Morning

Duration: 1 hour

Candidates answer on the Question Paper

OCR Supplied Materials:
 None

Other Materials Required:
 None



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- 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).

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

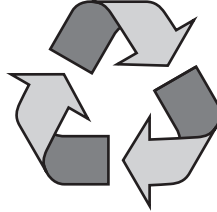
Answer **all** questions.

You are advised to spend 15 minutes on this section.

On questions 1-5 (ring) your answer.

1 The symbol shown stands for:

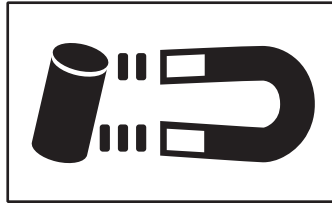
- (a) Share this product
- (b) Fold in the order shown
- (c) Recyclable
- (d) Travel this way round



[1]

2 Which material would display this symbol?

- (a) Brass
- (b) Mild Steel
- (c) Copper
- (d) Aluminium



[1]

3 Which of these is a property of a material?

- (a) Cost
- (b) Availability
- (c) Strength
- (d) Surface finish

[1]

4 Which of these processes produces the least material waste?

- (a) Stamping
- (b) Machining
- (c) Drilling
- (d) Casting

[1]

- 5 Aesthetic design considers the:
- (a) Appearance of a product
 - (b) Manufacture of a product
 - (c) Demand for a product
 - (d) Weight of a product [1]
- 6 What is the name given to materials that respond to external stimuli?
..... [1]
- 7 What term describes the design of an object to ensure it becomes outdated after a period of time?
..... [1]
- 8 What do solar cells convert the sun's energy into?
..... [1]
- 9 State the name given to the science of refining the design of products to optimise them for human use.
..... [1]
- 10 What is geothermal energy?
..... [1]

Decide whether each of the following statements is true or false.

Tick (✓) the box to show your answer.

	True	False	
11 Using recycled materials is good for the environment.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
12 Insulating a house will save on energy costs.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
13 Oil is a renewable energy source.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
14 Single use disposable products are good for the environment.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
15 The Fair Trade Foundation is committed to tackling poverty and injustice through trade.	<input type="checkbox"/>	<input type="checkbox"/>	[1]

Total [15]

5
Section B

Answer **all** questions.

You are advised to spend 45 minutes on this section.

16 The images in Fig. 1 below represent two different types of motor vehicle.

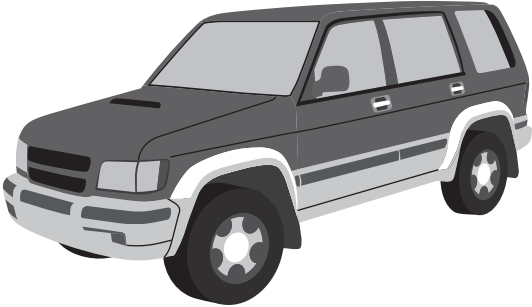

A 	B 
People carrier with Air-conditioning	Convertible town car
Parent company – USA	Parent company – Italy
Manufactured in South Africa	Manufactured in Poland
Seven seats	Two seats
Engine size – 3 Litres	Engine size – 600c.c.
Fuel – Petrol	Dual fuel – Electricity & Diesel

Fig. 1

Both vehicles are produced by multinational companies.

(a) Give **one** technological advance that has influenced the design of Car B.

.....
..... [1]

(b) Give **one** environmental pressure that has influenced the design of Car B.

.....
..... [1]

(c) Give **two** advantages to the user of Car A.

1.
.....
.....

2.
.....
..... [4]

(d) Give **two** ways in which globalisation benefits a multinational company.

1.
.....

2.
..... [2]

(e) Give **two** benefits of globalisation for a country where products are manufactured.

1.
.....

2.
..... [2]

(f) Explain how globalisation affects the carbon footprint of a company.

.....
.....
.....
..... [3]

(g) Describe the main purpose of the Ethical Trading Initiative.

.....
..... [2]

17 The text highlighters shown are produced in batches, packed in threes and sent to the retailer in display boxes containing 100 packs.

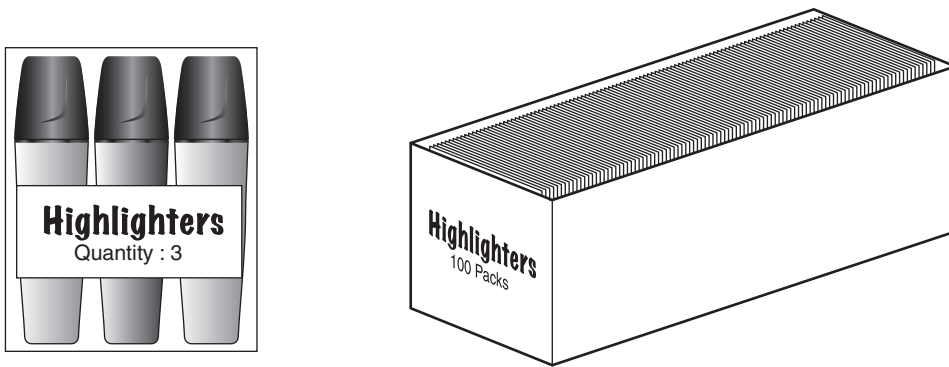


Fig. 2

(a) Explain why the packaging in Fig. 2 is important to the manufacturer, the retailer and the consumer.

(i) Manufacturer
.....
.....
.....
.....
.....
..... [3]

(ii) Retailer
.....
.....
.....
.....
.....
..... [3]

(iii) Consumer
.....
.....
.....
.....
.....
..... [3]

18 (a) With reference to the 6Rs, state **one** positive and **one** negative aspect of each of the milk containers in Fig. 3.

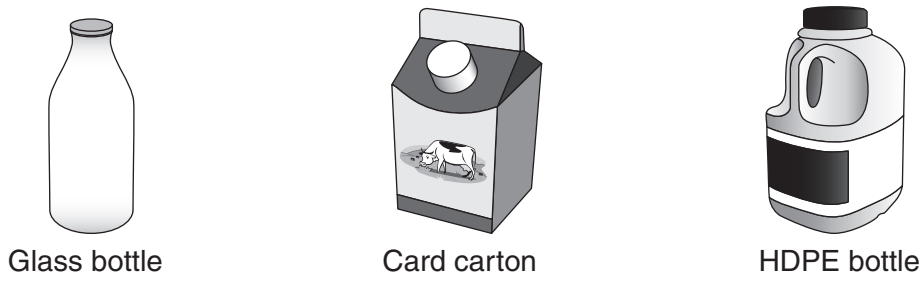


Fig. 3

(i) Glass bottle:

Positive

.....

Negative

..... [2]

(ii) Card carton:

Positive

.....

Negative

..... [2]

(iii) HDPE bottle:

Positive

.....

Negative

..... [2]

(b) Explain how fashion has influenced the design of mobile phones.

.....

.....

.....

.....

..... [3]

11
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