

**Wednesday 22 May 2013 – Afternoon**

**GCSE ENGINEERING**

**A624/02** Impact of Modern Technologies on Engineering

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

None

**Duration:** 1 hour



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

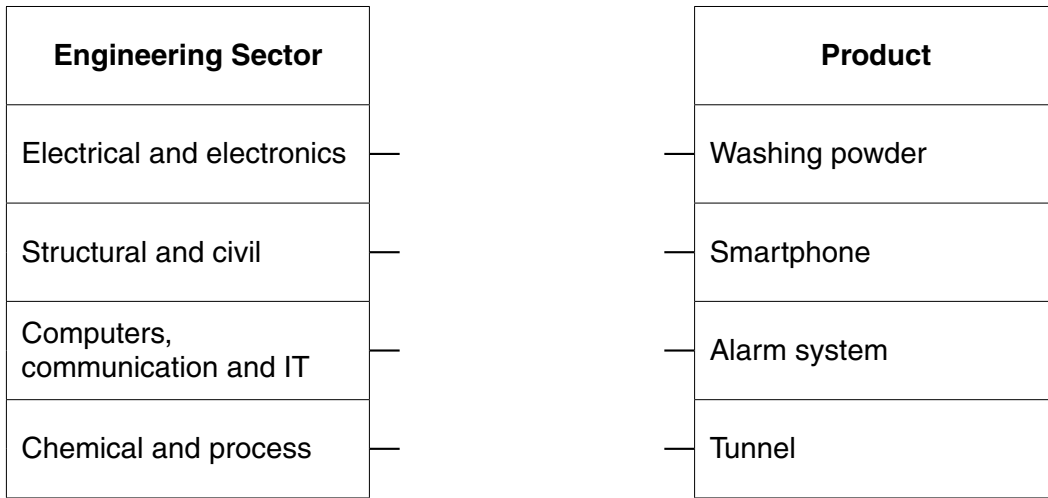
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting 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).
- 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 will be assessed in questions marked with an asterisk (\*).
- This document consists of **12** pages. Any blank pages are indicated.

1 Engineering sectors produce different products.

(a) Complete the links below to identify which engineering sector makes the products listed.



[4]

(b) Choose **two** sectors from the list above and give **one** different example of a product made in each sector.

Sector .....

Product ..... [1]

Sector .....

Product ..... [1]

(c) Describe how a modern technology is used in **one** of the products listed in part (a).

Product .....

Use of modern technology .....

.....

..... [2]

- 2 (a) Complete the table below by giving **one** example of each type of engineering material. One has been done for you.

Material Type	Example
alloy	
ceramic	Tungsten carbide
composite	
ferrous metal	
non-ferrous metal	
polymer	

[5]

- (b) Explain what is meant by the term 'composite'.

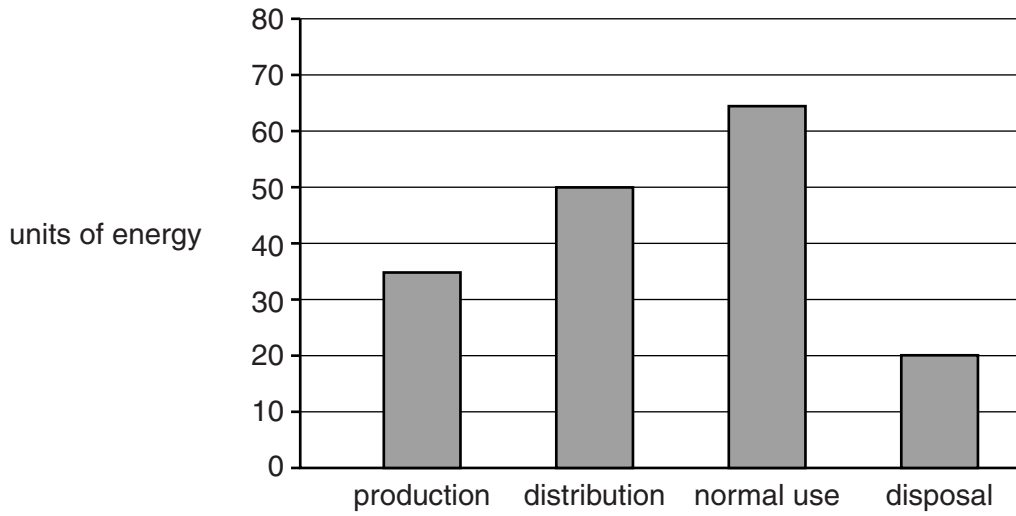
.....

.....

.....

..... [3]

3 The bar chart below shows the energy used at stages in the life of an engineered product.



(a) (i) State which stage uses the most energy.

..... [1]

(ii) Explain how the amount of energy used in the distribution stage might be reduced.

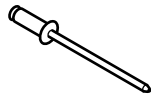
.....  
.....  
.....  
..... [3]

(b) Give **three** examples of renewable energy sources.

- 1 .....
- 2 .....
- 3 .....

[3]

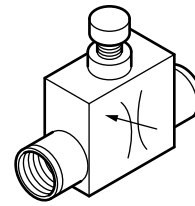
4 Some examples of 'pre-manufactured standard components' are shown below.



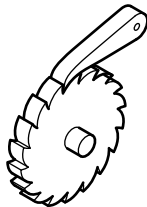
A



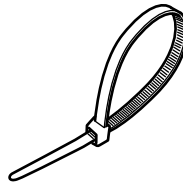
B



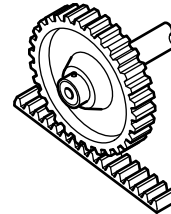
C



D



E



F

(a) Select **two** of the components shown.  
Give the name of the component and a description of its use.

Component letter .....

Name of component ..... [1]

Description of use .....

.....

..... [2]

Component letter .....

Name of component ..... [1]

Description of use .....

.....

..... [2]

(b) Give **one** reason why a manufacturer of engineered products might use 'pre-manufactured standard components'.

.....

.....

..... [2]

5 Fig. 1 shows a cordless electric drill.

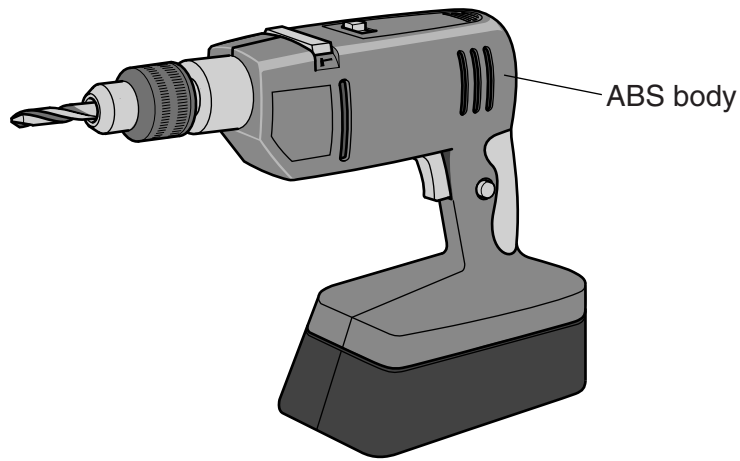


Fig. 1

(a) Name the industrial process used to make the body of the electric drill.

..... [1]

(b) Describe **two** ways in which modern technologies are used in the electric drill.

1 .....

.....

..... [2]

2 .....

.....

..... [2]

(c) Give **two** features of the electric drill shown in Fig. 1 that help to make it safe to use.

1 .....

.....

2 .....

..... [2]

6 A list of quality control techniques is given below.

**sampling  
comparing  
action**

(a) Explain what is meant by 'sampling' in quality control.

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

(b) Name **two** tools or items of equipment used for quality control checks on engineered products.

1 .....

2 ..... [2]

(c) Describe **two** possible effects of not using quality control checks.

1 ..... [2]

2 ..... [2]

7 Computer control is used on many production machines and items of equipment.

(a) Give **two** benefits to an engineering company of using computer controlled machines.

1 .....

.....

2 .....

.....

[2]

(b) Describe **one** example of the use of robotics in the assembly of engineered products.

.....

.....

..... [2]

(c) Explain why 'design for ease of disassembly' is important when developing new engineered products.

.....

.....

.....

..... [3]





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