

Friday 18 May 2012 – Morning

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.

Engineering Sector	Product
Aerospace	Varifocal glasses
Medical and Pharmaceutical	Tow bar
Electrical & Electronic	Aircraft tyres
Automotive	Wireless controller
Chemical and Process	Toaster
Computers, Communication and IT	Shampoo

[6]

(b) Select **three** engineering sectors from the list above. Give **one** different product made in that sector.

- 1 Sector
- Product [1]

- 2 Sector
- Product [1]

- 3 Sector
- Product [1]

2 The introduction of modern technologies has resulted in a wider range of products being made by engineering sectors.

(a) Describe **two** benefits that the use of modern technology has had on the range of products being made.

1
.....
..... [2]

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

(b) Describe, using **two** examples, how modern technology has reduced the impact of engineering on the environment.

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

3 Engineering drawings can be produced using traditional methods or by using CAD.

(a) State what the letters **CAD** stand for.

C **A** **D** [1]

A pencil and ruler are two pieces of traditional drawing equipment that could be used to produce an engineering drawing.

(b) Name **two** other pieces of traditional drawing equipment.

1 [1]

2 [1]

(c) Completed CAD drawings are usually saved as computer files.

(i) Name **one** method of sharing computer files with engineering companies in different countries.

..... [1]

(ii) Describe how the method you have identified in (c)(i) is carried out.

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

(iii) Explain the benefit of using computer files over traditional methods of sharing engineering drawings.

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

4 The following quality control techniques are often used on engineered products.

- a. **action**
- b. **comparing**
- c. **sampling**

(a) Give **two** benefits of using a 'sampling' technique.

1 [1]

2 [1]

(b) Describe, using **one** example, what is meant by 'comparing' in terms of quality control.

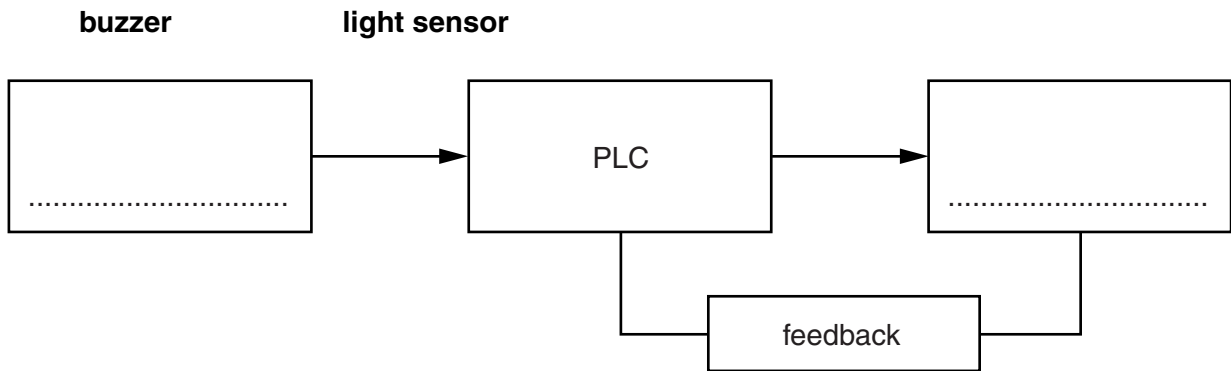
.....
.....
..... [2]

(c) Describe what is meant by 'action' in terms of quality control.

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

5 Programmable Logic Controllers (PLCs) are used to control and monitor the inputs and outputs of a production system.

(a) Complete the control system diagram using the terms listed below:



[2]

(b) Name **two** different sensors other than that in 5(a) that could be used in a control system.

1 [1]

2 [1]

(c) Explain, using **one** example, how PLCs can be used in the assembly of engineered products.

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

6 Describe **one** different safety procedure that should be carried out **before** starting each of the following engineering processes.

Do not include personal protective equipment (PPE) in your answers.

(i) Milling
.....
..... [2]

(ii) Brazing
.....
..... [2]

(iii) Spray painting
.....
..... [2]

7 Engineering components are classified as:

electrical/electronic
mechanical
pneumatic/hydraulic

(a) Select **six** of the engineering components listed below and place them in the correct position in the table.
Three have been done for you.

lamp **flow control valve** **split pin**
sprocket **diode** **reservoir**
drain tap **transistor** **cam**

Electrical/Electronic	Mechanical	Pneumatic/Hydraulic
diode	cam	reservoir

[3]

[3]

(b) Give **two** examples of systems where a switch may be used.

1 [1]

2 [1]

(c) Explain the function of any **one** of the engineering components listed below:

reservoir diode cam

Component

Function

.....

..... [2]

10
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11
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