

Candidate forename						Candidate surname					
Centre number						Candidate number					

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE
A624/02
ENGINEERING

Impact of Modern Technologies on Engineering

FRIDAY 18 MAY 2012: Morning
DURATION: 1 hour
plus your additional time allowance

MODIFIED ENLARGED

Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- **Write your name, centre number and candidate number in the boxes on the first page. 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).**

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 (*).**

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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 opposite.
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.

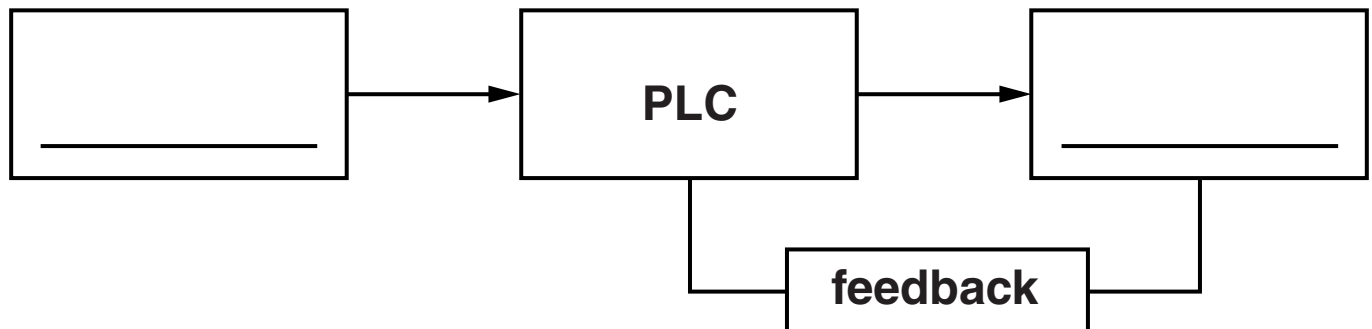
_____ [2]

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:

BUZZER

LIGHT SENSOR



[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]**

[illegible]

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