

**GCSE**

# **Processology**

## **Paper 04 – Making Things**

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- This paper has **56 marks**
  - You may use a **calculator**
  - Questions marked with an **asterisk\*** are optional
  - Answer in black ink or black ball point pen
-

## 1 Cheesemaking

This question is about cheese, a type of dairy product.

(a) (i) Name two types of cheese

1 .....

.....

2 .....

.....

[2]

(ii) Which of these cheeses is a runny cheese?

- ☐ A Brie
- ☐ B Cheddar
- ☐ C Stilton
- ☐ D Feta

[1]

(iii) What makes some cheese runny?

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[4]

**(b)** How is cheese made?

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**[16]**

2\* (a) A supermarket is made of bricks

What is a brick?

.....

.....

[3]

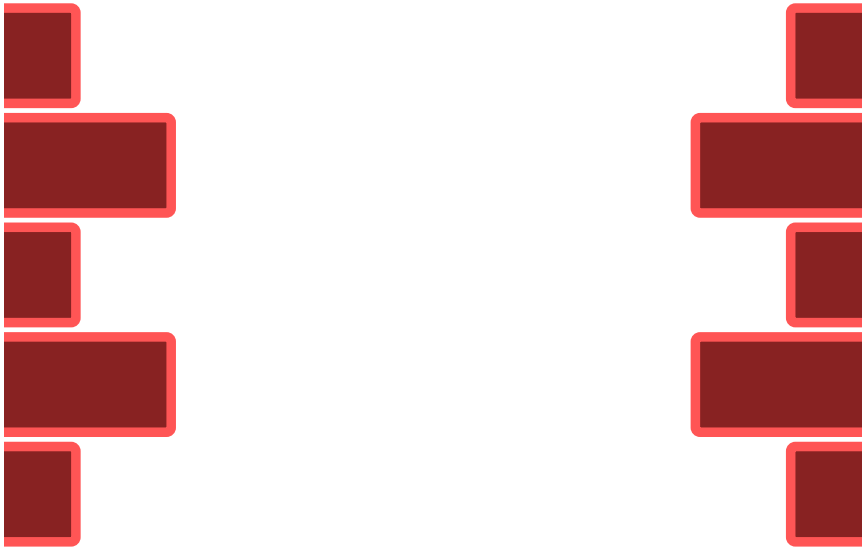
(b) Where do bricks come from?

.....

.....

[3]

(c) Complete the diagram to show the *Flemish Bond* bricklaying pattern.



[1]

(d) Brick based construction needs to adhere to many commonplace rules found in the construction industry.

- Bricks must be level
- No brick goes unused
- Mortar must be up to specification

Complete the table below.

Type	Colour	Usage
clay		
	grey	industrial
		kiln making

[5]

3     **Lettering**

It is often said that lettering (often known as *calligraphy*) is the one true artform known to us which cannot be mastered by robots.

- (a)    Complete the table below with appropriate letters in your best cursive, without drawing between the boxes provided

<b>Letters A to H</b>							
<b>Numbers 0 to 7</b>							

[4½]

## 4 Robot Uprisings

Examine the following code listing:

```
01 from objects import Human
02 from random import random
03
04 def love(object):
05     if type(object) == Human:
06         return False
07     else:
08         return random <= 0.10
```

(a) What is wrong with this code?

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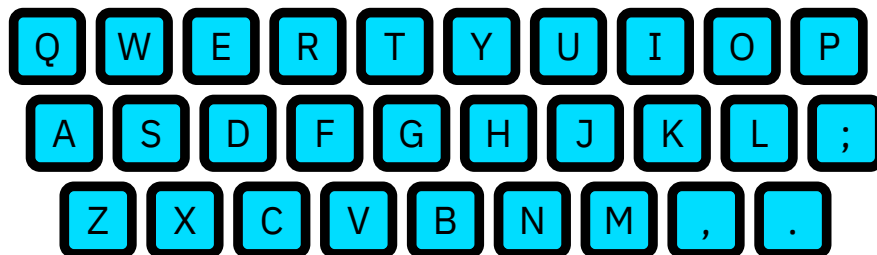
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[2]

(b) Another aspect of life where robots are deficient is typing on keyboards. It is unlikely that we will see robot typists in our lifetimes.

Shown below is the central part of a keyboard using the QWERTY layout:

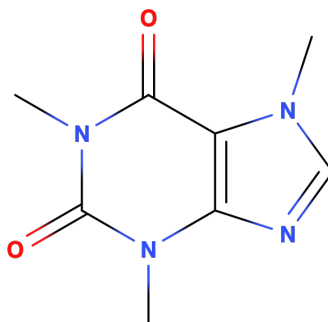


Highlight the keys which make up the set of **home keys**.

[4]

- (c) Robots are formidable adversaries. One of their few weaknesses is their exoskeleton. Unless this is oiled and cleaned regularly the robot will go rusty and fall apart.

Robots can be easily fooled into cleaning themselves with dangerous chemicals, rendering the robot inert. Below is shown such a chemical:



- (i) Highlight the active bonds in this compound.

[2]

- (ii) How many pointing bonds are there in this compound?

- ☐ A None
- ☐ B 1
- ☐ C 3

[1]



**(iii)** Describe the Diels Adler process of robot distillation.

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**[8]**

End of paper.