



**Scenario 1**

**Questions 1, 2, 3, 4, 5, 6 and 7**

A2Z is a company which specialises in developing new drugs for treating human illnesses. They use a supercomputer in their research.

Daniel works as a publisher for the company and produces a monthly magazine.

The magazine contains articles about the research being carried out both in the laboratories and at research sites around the world.

Daniel employs a number of reporters to write the articles for the magazine. The reporters are expected to gather information from the scientists.

The reporters are provided with a laptop.

Articles may be produced in the offices or while travelling but have to be sent to Daniel in time for publication in both hardcopy and electronic formats.

1 Give reasons why a reporter would use each of these input devices when preparing their articles.

(i) A4 scanner

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

(ii) microphone

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

2 Describe the limitations of using a laptop for creating an article and sending it to Daniel.

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









7 (a) Describe what is meant by the term 'supercomputer'.

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

(b) Describe how supercomputers are used in drug research.

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



**BLANK PAGE**

**Scenario 2****Questions 8 and 9**

SRCo is a scientific research company that employs a number of skilled technicians to support the scientists in its laboratories. The technicians may work in more than one laboratory depending on the needs of the scientists.

The company has a human resources department that keeps a database. The database stores details of the technicians. The human resources department issues each technician with an identity badge.

Jasmine works in the human resources department where her job is to create a new record in the database and issue a badge to a technician when they join the company.

8 (a) Explain why Jasmine would need to use each of the input devices below when she creates a new record in the database.

(i) digital camera

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

(ii) keyboard

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

(b) (i) When a database is created, the fields in the database are usually assigned a data type. Explain why it is necessary to assign a data type to a field.

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









**Scenario 3**

**Questions 10, 11 and 12**

KemCo is a chemical company that develops, manufactures and markets fertilizers for growing crops.

Colin, the marketing manager, uses computer-based financial models to assess whether or not the company should develop, manufacture and market a new fertilizer.

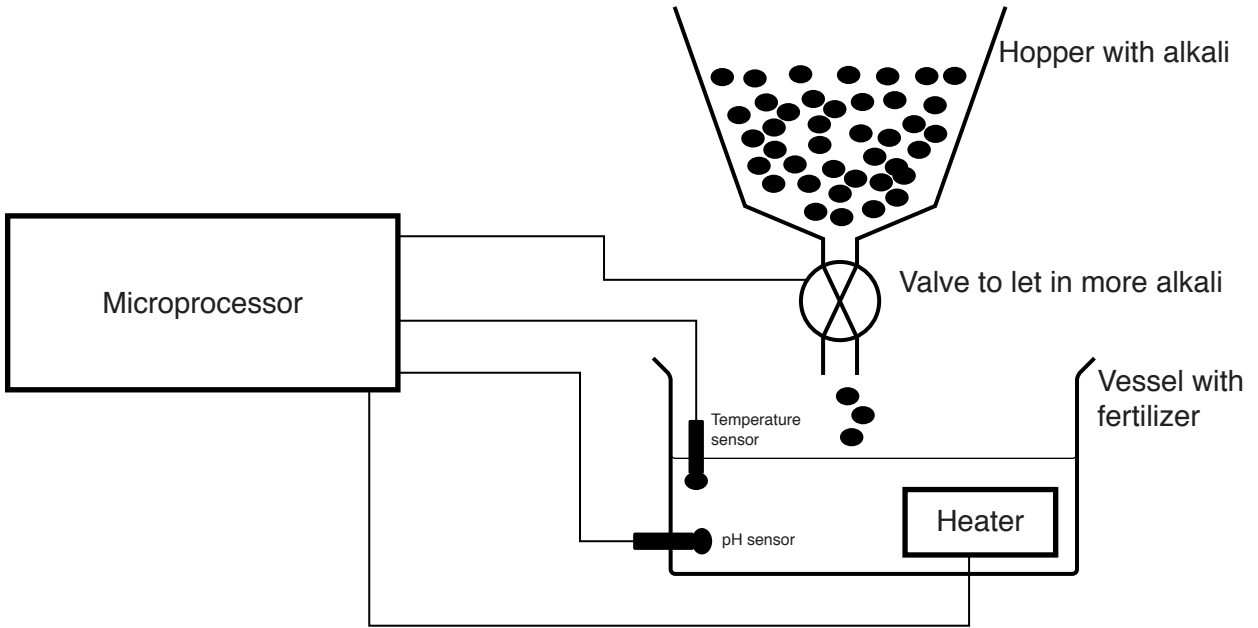
The manufacturing process of the fertilizer is monitored and controlled by microprocessors.

Once the fertilizer is ready to sell, Colin uses primary and secondary marketing techniques to help him market the fertilizer.





- 11 The fertilizer manufacturing process is dependent on temperature and pH. Alkali is used to raise the pH of the fertilizer in the vessel. A diagram of the process is shown below. A microprocessor is connected to the sensors, valve and heater.



Describe how the microprocessor controls the conditions in the vessel.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



12 (a) Explain the differences between primary and secondary research.

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

(b) Describe how Colin could use computer-based research techniques to carry out primary research.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
..... [6]

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.