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**Answer ALL questions**

1. A doctor's patient record system has been computerised. A backup system for the records is essential.

(a) Give **two** reasons why a backup system is essential.

Reason 1 .....

Reason 2 .....

**(2)**

(b) Describe **three** factors that should be considered in the design of a backup system.

Factor 1 .....

Factor 2 .....

Factor 3 .....

**(6)**

**Q1**

**(Total 8 marks)**



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2. (a) All computers use a Central Processing Unit (CPU). The processor interprets and carries out the basic instructions that operate a computer.

State the function of the following parts of the CPU.

(i) Control Unit .....  
.....  
(1)

(ii) Arithmetic and Logic Unit .....  
.....  
(1)

(iii) Immediate Access Store .....  
.....  
(1)

- (b) A computer also requires an operating system.

- (i) State **three** tasks that are performed by an operating system.

Task 1 .....

Task 2 .....

Task 3 .....  
(3)

Some operating systems have a Graphical User Interface (GUI).

- (ii) Name **one** other type of user interface.

.....  
(1)

- (iii) Give **two** benefits of a GUI over the user interface that you identified in (ii).

Benefit 1 .....

Benefit 2 .....  
(2)

(Total 9 marks)

Q2

3

Turn over



N 3 7 8 0 4 A 0 3 2 0

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3. A small company that develops games software employs several programmers and administrative staff. The company has installed a Local Area Network (LAN).

The programmers sometimes use stand-alone computers instead of the networked ones.

(a) Explain **one** benefit to the programmers of using stand-alone computers.

.....  
.....  
(2)

(b) Describe **two** benefits to the company of using the LAN.

Benefit 1 .....  
.....  
Benefit 2 .....  
.....  
(4)

A laptop is to be connected to the LAN using a wireless connection.

(c) (i) State **two** items of hardware required to connect the laptop to the LAN.

Item 1 .....  
Item 2 .....  
(2)

(ii) State **one** item of software required for this purpose.

.....  
(1)

(iii) Explain the function of this software.

.....  
.....  
(2)

(Total 11 marks)

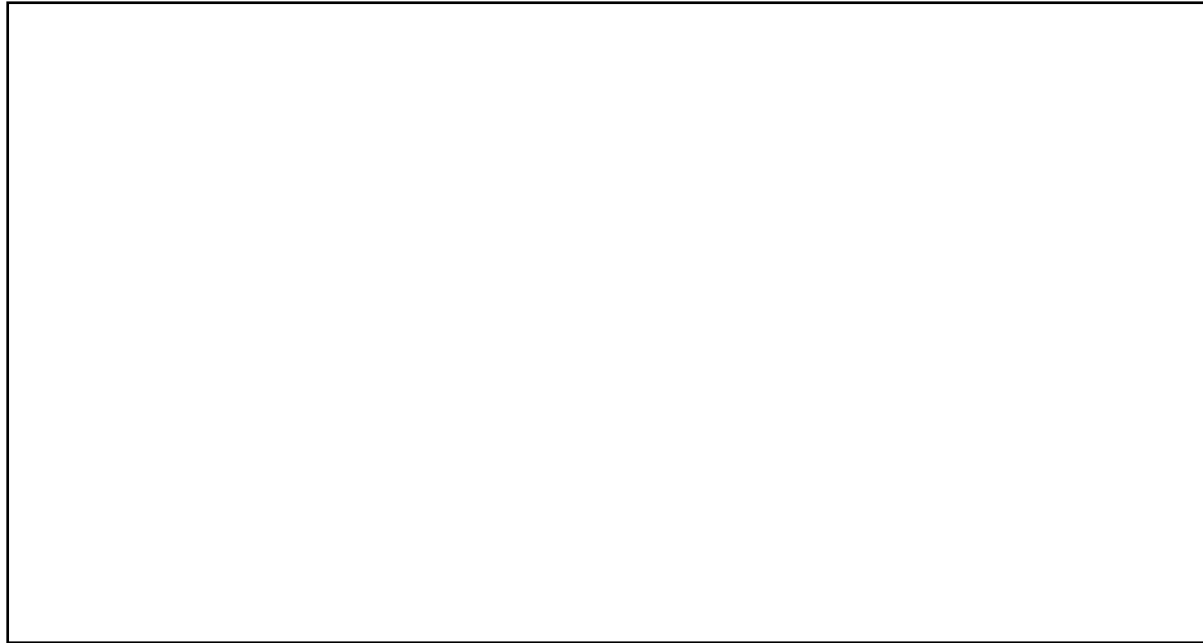
Q3



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4. A bus is one type of network topology.

(a) (i) In the box provided, draw and label a diagram of a bus network that uses cables. Label the server and use arrows to show the direction of the dataflow.



(3)

(ii) Explain what happens when a cable is broken in this network.

.....  
.....  
.....

(2)

(b) (i) Name **one** other type of network topology that uses cables.

.....

(1)

(ii) Explain what happens if a cable is broken in this other type of network.

.....  
.....  
.....

(2)

(Total 8 marks)

Q4



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5. The development of the Internet has changed the lives of people in many ways.

Using the Internet, people can find information without leaving their home.

(a) Describe **two** ways of finding information on the Internet.

1 .....

2 .....

(4)

(b) Information found on the Internet is not always accurate.

(i) Give **one** example to show why information found on the Internet is not always accurate.

.....

(1)

(ii) Give **two** suitable precautions people can take to help ensure the accuracy of the information they use from the Internet.

Precaution 1 .....

Precaution 2 .....

(2)

Q5

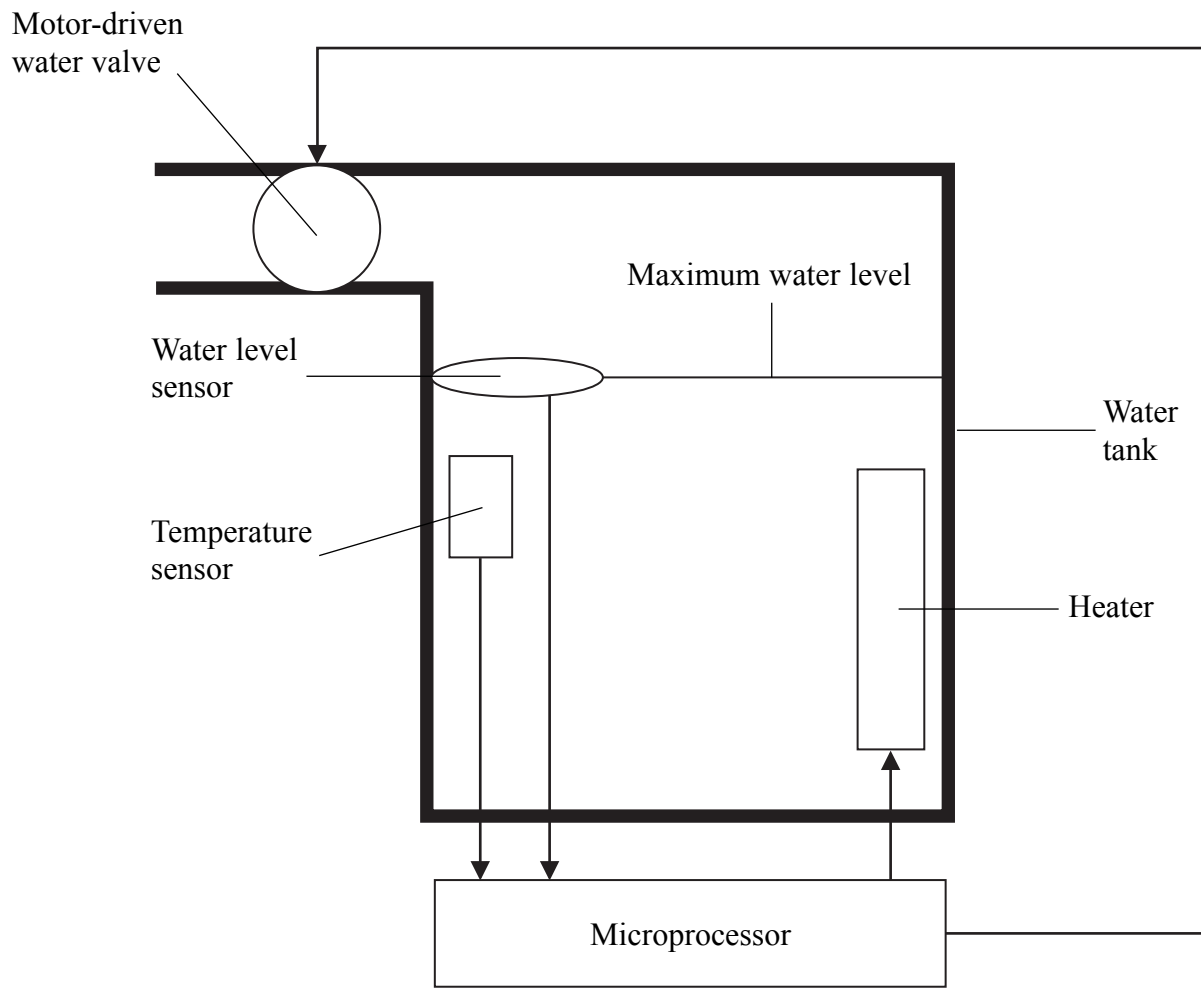
(Total 7 marks)

7

Turn over



6. Here is an example of process control. In a chemical process, a container is filled with water to the maximum level, shown in the diagram. This container is empty at the start of the process.



(a) Write a set of instructions in pseudo code or structured English to fill the container with water up to the maximum level.

.....  
.....  
.....  
.....  
.....  
.....

(3)







|                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <p>When the maximum level is reached, the water is then heated to a temperature of 70 °C.</p> <p>(b) Explain how feedback is used to ensure that the water temperature remains close to 70 °C.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;"><b>(4)</b></p> <p style="text-align: right;"><b>(Total 7 marks)</b></p> | <p>Leave blank</p> <p><b>Q6</b></p> <input data-bbox="1612 1181 1654 1252" type="text"/> |
|                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                          |



N 3 7 8 0 4 A 0 9 2 0



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7. Kingsbridge Worldwide sells goods by mail order. Orders are received by post and goods are sent out to customers as soon as possible. The company uses a computer to hold data about customers and their orders.

(a) State a type of data error and describe a possible consequence of this error for the company.

Type of data .....

Consequence .....

.....  
(2)

(b) Describe **two** methods the company could use to verify data when it is input to the computer.

Method 1 .....

.....

Method 2 .....

.....  
(4)

(Total 6 marks)

Q7



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8. A company is to set up a website to advertise its range of products.

(a) State **two** factors that the company should consider when deciding on a web address (URL). Give a reason in each case.

Factor 1 .....

Reason .....

.....

Factor 2 .....

Reason .....

.....

(4)

(b) Describe **three** ways in which the company can use the Internet to encourage visitors to their site.

1 .....

.....

2 .....

.....

3 .....

.....

(6)

Q8

(Total 10 marks)



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9. A company is responsible for the health and safety of its employees. A data entry clerk spends all day entering data at a workstation.

(a) State **two** design features that the clerk's workstation should have to ensure the health and safety of the clerk. Give a reason in each case.

Feature 1 .....

Reason .....

.....

Feature 2 .....

Reason .....

.....

(4)

(b) State **two** other ways, not involving the design of the workstation, in which the company could ensure the health and safety of the clerk. Give a reason in each case.

1 .....

Reason .....

.....

2 .....

Reason .....

.....

(4)

Q9

(Total 8 marks)



10. A riding school has a database that stores details of students and the times of their riding lessons. Extracts from the student table and the lesson table are shown.

Student table:

| Student    |            |         |                |           |          |     |
|------------|------------|---------|----------------|-----------|----------|-----|
| Student ID | First Name | Surname | Address1       | Address2  | Address3 | Age |
| 004        | Laura      | Holden  | 29 Long Street | Elmsworth | EL8 9PG  | 15  |
| 005        | Loo        | Jocelyn | 12 High Grove  | Elmsworth | EL8 6BN  | 11  |
| 006        | Stylianous | Stelios | 3 Cedar Road   | Oakton    | OA7 7VE  | 16  |

Lesson table:

| Lesson    |            |       |            |            |         |
|-----------|------------|-------|------------|------------|---------|
| Lesson ID | Date       | Time  | Student ID | First Name | Surname |
| 056       | 18/03/2010 | 09:30 | 004        | Laura      | Holden  |
| 057       | 18/03/2010 | 10:00 | 005        | Loo        | Jocelyn |
| 058       | 19/03/2010 | 10:00 | 006        | Stylianous | Stelios |

(a) Identify the key field in the Student table.

Key field ..... (1)

(b) Give the name of the field that links the two tables.

..... (1)

(c) The lesson table is poorly designed because first name and surname appear in both tables.

Explain **two** effects this design problem would have.

Explanation 1 .....

.....

Explanation 2 .....

.....

(4) Q10

(Total 6 marks)



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**11.** ICT information systems in any organisation need to be protected from computer crime. Computer crime can come from within the organisation or from outside.

(a) (i) Give an example of an **internal** computer crime.

.....  
(1)

(ii) State a problem caused by this crime.

.....  
(1)

(iii) Explain how the system can be protected from this crime.

.....  
.....  
.....  
(2)

**When you answer question 11(b) do not repeat your answers to 11(a).**

(b) (i) Give an example of an **external** computer crime.

.....  
(1)

(ii) State a problem caused by this crime.

.....  
(1)

(iii) Explain how the system can be protected from this crime.

.....  
.....  
.....  
(2)

**(Total 8 marks)**

Q11

15

Turn over



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12. A weather station at the North Pole records the temperature at regular intervals. The weather station uses data logging.

(a) Explain what is meant by data logging.

.....  
.....

(2)

(b) Explain **two** benefits of data logging in this context.

Explanation 1 .....

.....  
.....

Explanation 2 .....

.....  
.....

(4)

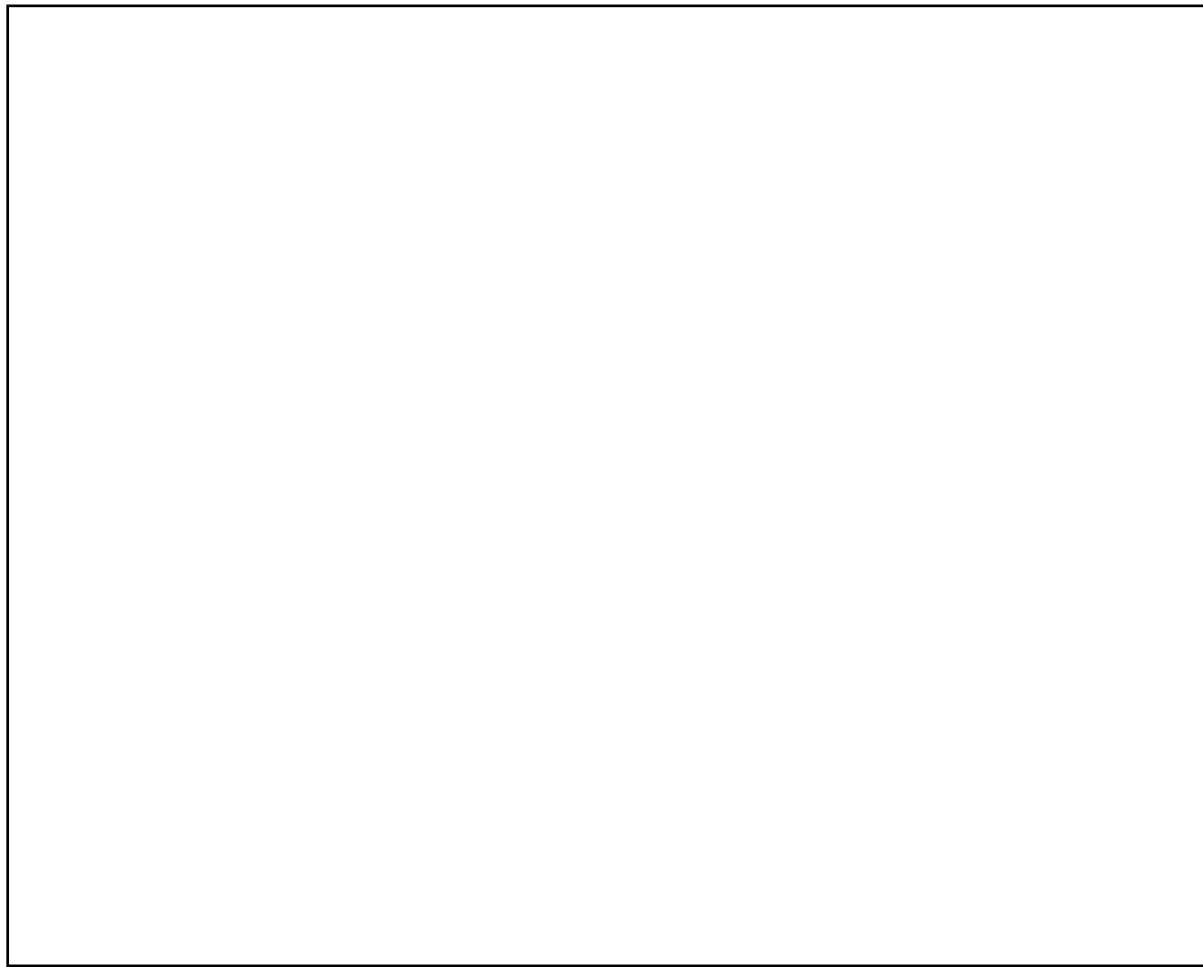




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This data is automatically transmitted to the base station each day.

(c) (i) In the box provided, draw and label a diagram of this data logging system.



(4)

(ii) The data is analysed using a spreadsheet. Explain how the spreadsheet might be used for this purpose.

.....  
.....  
.....

(2)

Q12

(Total 12 marks)

**TOTAL FOR PAPER: 100 MARKS**

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