



CHAPTER 14: System Software

PASTPAPERS

N.B. These pastpapers may rely on the knowledge gained from the **previous chapters**.

2 SEC'95-PAPER 1-Q8

All computers require an Operating System in order to function.

a. What do you understand by the term **Operating System**?

[4]

b. i. What is **Batch Processing**?

[2]

ii. Mention **one** application of batch processing.

[2]

c. i. What is a **real-time Operating System**?

[2]

ii. Describe briefly **one** situation where a real-time operating system is required

[1]

3 SEC'96-PAPER 1-Q1

Briefly describe what the following parts of a GRAPHICAL USER INTER-FACE (GUI) are used for:

a. An ICON _____

[2]

b. A Window FRAME _____

[2]

c. A SCROLL BAR _____

[2]

d. A DIALOG BOX _____

[2]

5 SEC '97-PAPER 1-Q2 (CONSULT CH 9)

Mention TWO advantages of linking computers together to form a network

i _____ [1]

ii _____ [1]

What is meant by LOGGING ON to a network

_____ [2]

What is meant by SPOOLING printer output?

_____ [2]

6 SEC'97-PAPER 1-Q8

Use TEN of the following terms to complete the passage below:

Scroll bar *icon* *font* *item* *language*

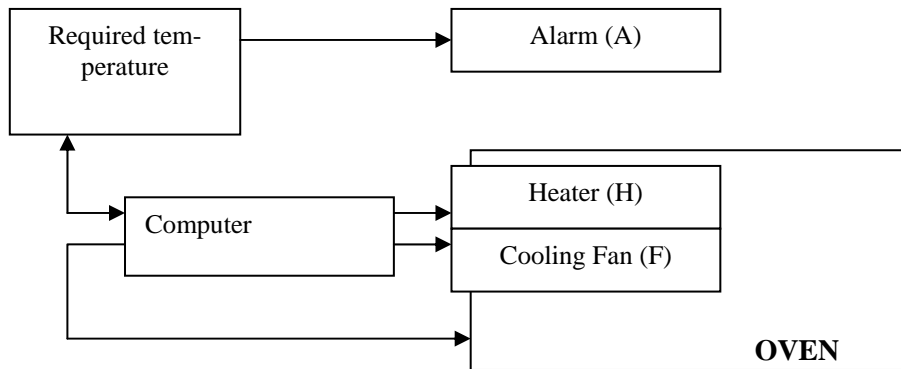
Diskette *copying* *mouse* *software* *menu*

Pointer *keyboard* *windows* *clicking* *clipboard*

In a Graphical User interface (GUI), the user uses a _____ to move a _____ around the screen. Programs can be executed by _____ on the appropriate _____, and selections can be made easily from a _____ by highlighting the desired _____. Similarly, _____ can be resized and moved around and a _____ can be used to scroll to the desired portion of a document. A _____ is usually provided to enable _____ of items between applications.

[5]

7 SEC'97-PAPER 2A-Q1 (CONSULT CH 2)



Feedback temperature

An industrial oven is equipped with a dedicated computer which controls the operation of the oven's heating and cooling system to maintain a steady temperature.

The required temperature **RT** is set by the operator.

The feedback temperature **FT** is the current oven temperature.

A heater **H** is used to heat up the oven whilst a cooling fan **F** is used to lower the temperature in the oven.

- a. Distinguish between a **dedicated** computer and a **general-purpose** computer [1]
- b. What type of processing is required by this system? Give reasons for your answer. [3]
- c. What are the three possible states of the oven? [3]
- d. Write the algorithm which the processor continuously executes in order to maintain a steady temperature in the oven. [6]
- e. An alarm **A** connected to the system is activated if the temperature varies by 10° or more from **RT**. Modify the algorithm you wrote in part **d** to include this circumstance. [4]

8 SEC'98-PAPER 1-Q9

The following are three types of **computer systems**:

On-line system real-time system batch processing system

For each of the following computerized applications, select the most appropriate computer system from the three above.

Application	Computer System
Printing mailing labels	
Travel-agents booking system	
Air-traffic control system	
Banking ATM system	
Controlling robots	
Producing payslips	

[6]

10 SEC'99-P2A-Q6B

- b. With reference to the storage of files on a disk, what is meant by [4]
hierarchical directory structure.

11 SEC '00-PAPER 1-Q7

With reference to **OPERATING SYSTEMS**, briefly explain each of the following:

a. Batch processing

[1]

b. User Interface

[1]

c. Print Spooling

[1]

d. Resource sharing

[1]

8. Most computers have a Graphical User Interface (GUI).

a. List **FIVE** features found in any GUI.

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

[5]

b. Mention **TWO** disadvantages of a GUI.

.....
.....

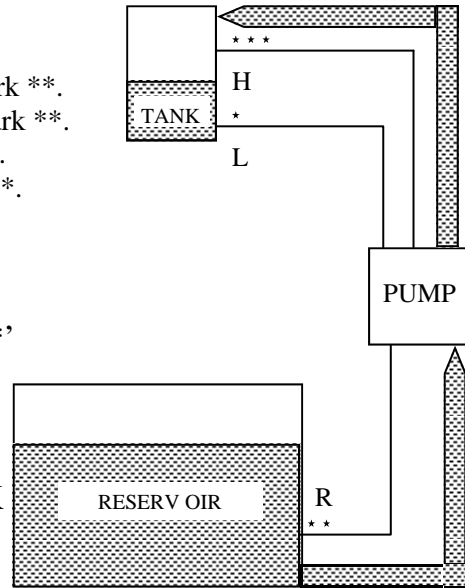
[2]

19 SEC '04-PAPER 2A Q8 (CONSULT CH 6)

Computers may be used for process control.

- (a) Briefly describe an example of a process which is computer controlled. [1]
- (b) Mention **TWO** advantages and **TWO** disadvantages of introducing computers to control processes in industry. [2]
- (c) A farmer uses a water pump to pump up water from an underground reservoir to an elevated tank, as shown in the diagram. [8]

L=0 if water level in TANK is above mark *.
 L=1 if water level in TANK is below mark *.
 R=0 if water level in RESERVOIR is below mark **.
 R=1 if water level in RESERVOIR is above mark **.
 H=0 if water level in TANK is below mark ***.
 H=1 if water level in TANK reaches mark ***.



When the water in TANK falls below level '*' (sensor L=1) and there is water in RESERVOIR above level marked '**' (sensor R=1), the pump is switched on (P=1). The water pump stops pumping up water (P=0) from RESERVOIR to TANK when the level of water in TANK reaches level '***' (sensor H=1).

- (i) Complete the truth table below for controlling this water pump. [3]

L	R	H	P (pump on)
0	0	0	0
0	0	1	0
0	1	0	
0	1	1	
1			
1			
1			
1			

- (ii) Draw the logic circuit which controls this pump. [3]
