

This question paper consists of 13 printed pages including the cover page.

1 Spreadsheet software is used in many company to keep track of accounts.

Draw a line between the description and the correct spreadsheet function.

te number of <i>non</i> - e given range refe data in row and us d data in the same umber rounded up tiple of significanc	eempty erences se e row	•	• • •	COUNT HLOOKUP COUNTA CEILING
data in row and us d data in the same umber rounded up tiple of significanc	se e row o to an e	•	• •	HLOOKUP COUNTA CEILING
data in row and us d data in the same umber rounded up tiple of significanc	se e row	•	•	COUNTA
umber rounded up tiple of significanc	o to an œ	•	•	CEILING
umber rounded up tiple of significanc	p to an e	•		
			•	VLOOKUP
			•	FLOOR
кing.				
nvert the hexadec	imal numbe	r <b>C7</b> into a l	binary numbe	r. Show your
nvert the denary n king.	umber <b>189</b> i	into a hexad	decimal numb	per. Show your
r r r	nvert the binary nu rking. nvert the hexadec rking.	nvert the binary number <b>1001</b> rking. nvert the hexadecimal number rking.	nvert the binary number <b>10011001</b> into a rking. nvert the hexadecimal number <b>C7</b> into a lrking.	nvert the binary number <b>10011001</b> into a denary numb rking. nvert the hexadecimal number <b>C7</b> into a binary numbe rking.

- **3** With the advancement of technology and increasing use of online platforms, internet security is becoming more and more important to protect users from becoming victims of online crimes.
  - (a) Pharming and phishing are examples of potential internet security issues.Explain what is meant by each of these terms.

Pharming. Phishing. [4]

(b) Two-factor authentication is one of the safety measures that more websites are adopting these days.

Explain what is meant by Two-factor authentication.

.....[1]

Describe one limitation of the One-Time Password (OTP) used in the system.

.....[1]

4 Insert five of the following words about network devices and terms used in the correct place in the text below.

	SSID	modem	network hub	client
	server	network bridge	router	NIC
(a)	The and demo	dulation.	is a device responsible	e for modulation
(b)	The the transfe	er of data between a devi	is the hardware interfa ce and a network.	ce that enables
(c)	The between s	separate networks.	is a device that forward	ds packets
(d)	The network b	y connecting two similar r	is a device that construnetworks together.	ucts a single
(e)	The packets to	all connected devices.	is a device that transm	its received
(f)	The wireless a	ccess point (WAP) and a	is a 32-byte string that Il devices connected to i	identifies a t.
(a)	State the	function of the Arithmetic	Logic Unit (ALU).	[6]
(b)	State the	function of the data bus a between the two.	nd the address bus and	[1] also the

6 (a) The two primary memory used in the computer are RAM and ROM.
 State what RAM and ROM represent, what each is used for, and what is the difference from each other.

(b) Identify **two** types of external storage. Give an example of the storage device, state how the data is stored, the advantage and disadvantage of the storage device.

Device 1
Method
Advantage
Disadvantage
Device 2
Method
Advantage
Disadvantage
[4]

7 A school PE department wishes to use a computer program to find out which Secondary One students falls in the obese category. There are 150 students altogether.

State the inputs, the outputs and the processes required to find the names and the weight of the students who are obese.

(Assume that the data of weight and calculated BMI is available for use.)

Inputs
Outputs
Processors required
[6]
Identifiers, list and type casting are terms used in programming. Describe what is
meant by :

an identifier	
a list	
Type casting	
	[3]

**9** An algorithm is required to find the addition of 20 numbers. The algorithm should stop and output "EXCEED LIMIT" and the result total if the sum of the input numbers exceeds 1000. Otherwise it will output the result total when all 20 numbers have been keyed in. Study the following pseudo-code.

```
counter = 0

total = 1000

WHILE counter < 20 :

INPUT number

number + total = total

IF total < 1000

OUTPUT "EXCEED LIMIT"

counter = 20

ELSE

counter = counter -1

ENDIF

ENDWHILE

OUTPUT "The total is " + total
```

There are **four** errors in this pseudo-code. Locate the errors and state the correct pseudo-code.

Error 1	:	
Correction	:	
Error 2	:	
Correction	:	
Error 3	:	
Correction	:	
Error 4	:	
Correction	:	
		0

**10** Integers are input into the flowchart below:



Complete the trace table for the following set of data.

42, 77, 85, -5, 30, 91, -15, 0, 40, 45

Trace table

X	Pass	Fail	Check	OUTPUT

[5]

**11** An alarm sounds when certain conditions are detected in a chemical process. The inputs are :

Input	Binary value	Condition	
•	1	acidity > 5	
A	0	acidity <=5	
-	1	temperature >= 110 deg	
I	0	temperature < 110 deg	
	1	light bulb is ON	
L	0	light bulb is OFF	

The alarm, X , returns a value of 1 if:

either temperature >=110 deg AND light bulb is OFF

- or acidity > 5 AND temperature < 110 deg
- (a) Draw the logic circuit for the system.

[5]

A	т	L	x
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

(b) Complete the truth table for this alarm system.

[4]

**12** Data can often be lost or corrupted during transmission. One of the methods used to check that the integrity of the data remains intact is the parity check, which is the simplest method of error detection by appending or prepending an additional bit to a string of binary data for transmission.

Suggest another method other than the parity check to check for the integrity of the transmitted data and explains how it works.

- 13 Classify each of the following networks according to geographic size.
  - (a) The computers of a private organisation located in different parts of the city are networked together.

.....[1]

(b) An institute of education has five labs located at different floor levels in the same building and all the computers are networked together.

.....[1]

- **14** A café restaurant decides to provide free internet service to its customers. It is suggested that a wireless network will be a better consideration to be set up.
  - (a) What is the main transmission medium used in a wireless network.
    - .....[1]
  - (b) Give one advantage and one disadvantage of a wireless network as compared to a wired network.

- **15** Write an algorithm, using only pseudo-code or a program flowchart, that:
  - inputs ten different words or until the word "Quit" is pressed and stores these words in an array
  - outputs the array of words entered by the user in the same order but only once, i.e words keyed in before will not appear in the list the second time.

## ---END OF PAPER----