Name

HL SL

IBDP Computer Science

Year 11 Revision Activity

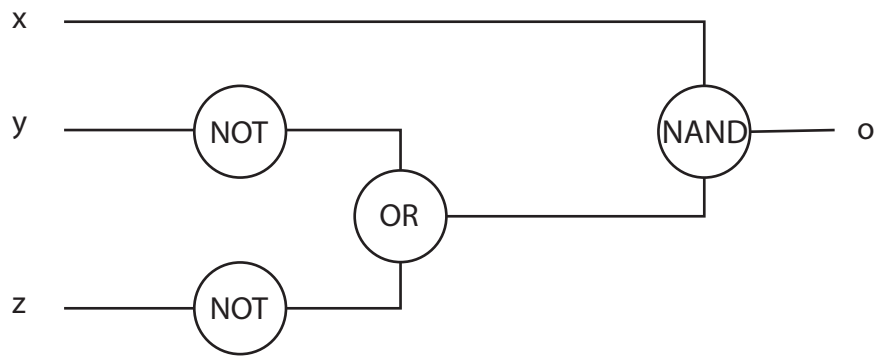
Section A - Topic 2

1 Draw the logic gate for the following truth table:

A	B	O
0	0	0
0	1	1
1	0	1
1	1	0

[2]

2 Look at this logic circuit:



Complete the truth table for this logic circuit:

x	y	z	working area	o
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

[4]

3 Prove that (NOT A OR NOT B) is not equivalent to (A NOR B)

[4]

4 Here is a byte of binary information.
State how many different values can be represented by a byte.

1 0 1 0 1 0 1 1

[1]

5 Here is a decimal number.
Convert it to a byte of binary information.

1 3 4

working area

[4]

6 Here is a decimal number.
Convert it to a hexidecimal number.

1 6 3

working area

[4]

7 The machine instruction cycle is the process by which a program instruction is fetched, decoded, executed and the results are stored.
State where all instructions and data are stored.

[1]

8 Outline the role of the memory data register in the machine instruction cycle.

[2]

9 Explain the roles of the data bus and the address bus in the machine instruction cycle.

[4]

10 Distinguish between random access memory (RAM) and read only memory (ROM).

[2]

11 State the part of the central processing unit (CPU) that is responsible for carrying out calculations.

[1]

12 Hexadecimal is used to represent colours.
Calculate how many different colours can be represented using two hexadecimal characters.

[2]

Section B - Topic 3 (Muliple Choice)

1 Which type of network best describes one that covers a large geographical area?

ⓐ WLAN

ⓑ WAN

ⓒ PAN

ⓓ VLAN [1]

2 A DNS server....

ⓐ retrieves the IP address of a given URL

ⓑ retrieves the URL of a given IP address

ⓒ increments an IP address until a desired status is reached

ⓓ decrements an IP address until a desired status is reached [1]

3 The Internet is fault tolerant. This means that

ⓐ it has many faults and consistently needs maintenance

ⓑ it never has any faults and is always in perfect working condition

ⓒ if a component breaks, it can continue working (mostly) as normal

ⓓ if a component breaks, the Internet will need to be reconfigured and will be unavailable for use [1]

4 The Internet is fault tolerant. This means that

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5 Data packets being routed on a mesh network such as the Internet

ⓐ always take the same route to the destination as each other packet in the message

ⓑ mostly likely take a different route than other packets and arrive in the correct order

ⓒ most likely take a different route than other packets and arrive in the wrong order

ⓓ never take the same route and always arrive in the correct order [1]

6 Which transmission medium offers the fastest transmission?

ⓐ radio waves
ⓑ electricity
ⓒ water
ⓓ light

[1]

7 The amount of data a communication channel can transfer in 1 second is know as its

ⓐ latency
ⓑ clock speed
ⓒ bandwidth
ⓓ resolution

[1]

8 119.43.0.7 is an example of

ⓐ a MAC address
ⓑ a URL
ⓒ a subchannel code
ⓓ an IP address

[1]

9 A communication channel operates at 80000bits/sec. How many bytes/sec is this?

ⓐ 800
ⓑ 8000
ⓒ 1000
ⓓ 10000

[1]

10 The name of the data transmission technology commonly used in a Local Area Network is

ⓐ Fibrenet
ⓑ Ethernet
ⓒ Othernet
ⓓ Alphanet

[1]

11 A function written in Java takes an array of INTEGERS as a parameter. It sorts the array using a bubble sort algorithm and returns true when it has finished. Fill the blanks.

```
public static [          ] bubbleSort(int[] nums){

   for(int i = 0; i< nums.length; i++){

      for(_______________; j< nums.length-1; j++){

           if([          ] > nums[j+1])){

                [          ] temp = nums[j];
                 nums[j] = nums[j+1];
                 nums[j+1] = temp;
           }
      }
   }
   [                ]
}
```

[4]

12 A main program calls the above function. If the returned value is true, it will display "Yay!". Otherwise it will display "Nay!". Complete the code.

```
[          ] result;

[          ] numberList = {1,6,4,2,8,7,4,2,34,6,7};

result = bubbleSort( [                    ]);

if([          ]){
     System.out.println([      ]);
}else{
     System.out.println("Nay!");
}
```

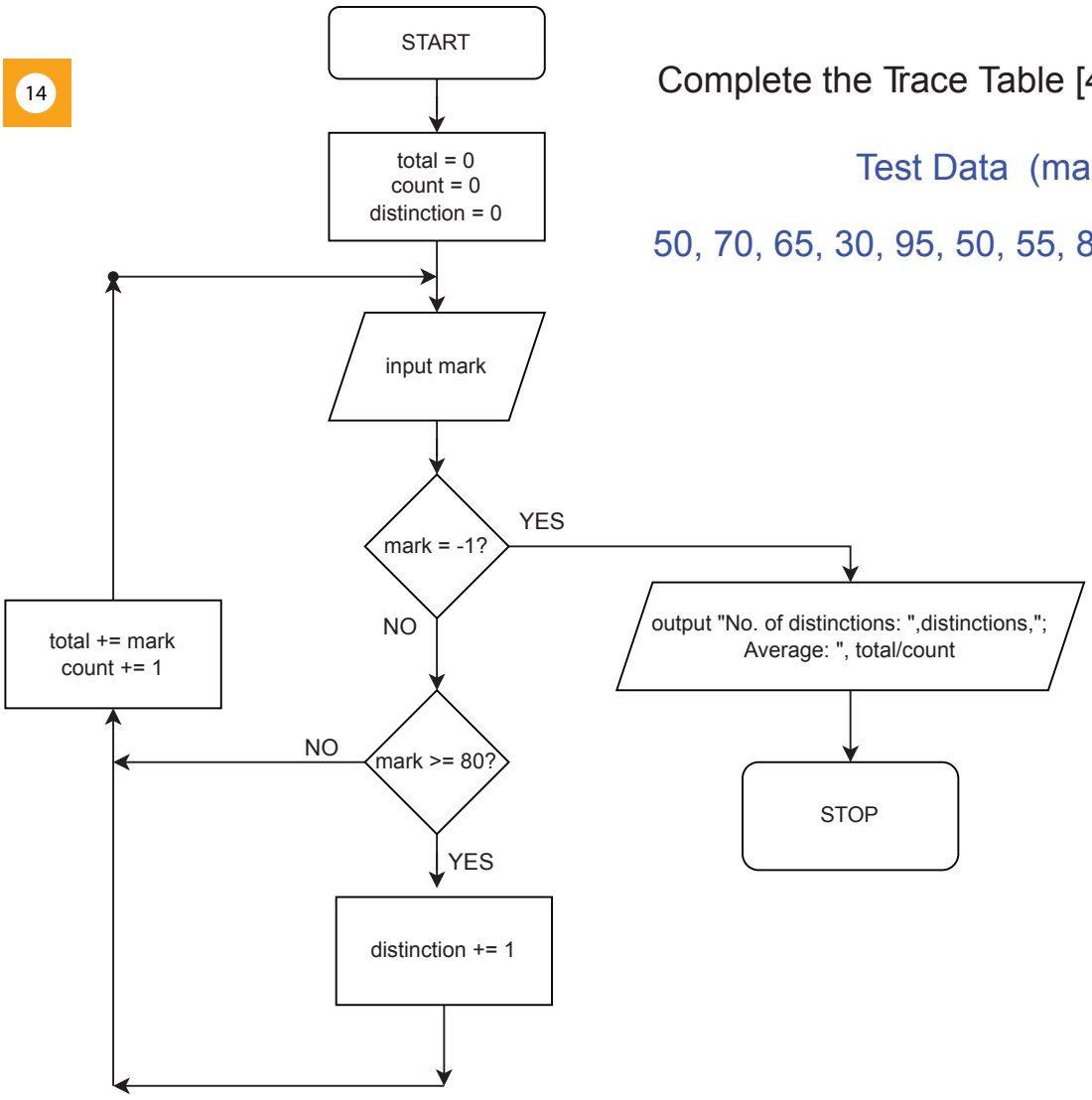
[5]

13 A mountaineer uses an app which uses satellite data to record elevations of the immediate area.
The elevation data (in meters) is stored in a 1-dimensional array of 100 numbers, `heights`.
When the mountaineer clicks the "Find Highest Elevation" button, the app outputs the elevation with highest number in the array.
Code an algorithm in pseudocode or Java which will output the highest number in the array, `heights`.

```
pre-condition: the lowest possible value stored in the array
is 0.
```

[5]

14



Complete the Trace Table [4]

Test Data (mark)

50, 70, 65, 30, 95, 50, 55, 85, 65, 35, –1, 45

total	count	distinction	mark	output