Computing 2018 Prelim P1 Mark Scheme

Question	Answer				
1	Description Function Returns the number of non-empty cells in the given range references • • COUNT	3			
	Looks for data in row and use associated data in the same row COUNTA				
	Returns number rounded up to an exact multiple of significance • • VLOOKUP • FLOOR				

Question	Answer	Marks
2	One mark for the correct answer and one mark for showing the releva working	int
2a	(2^0) + (2^3) + (2^4) + (2^7) = 1 + 8 + 16 + 128 (Working) = 153 (Answer)	2
2b	C 1100 7 0111 (Working) 1100 0111 (Answer)	2
2c	189 / 16 is 11 remainder 13 (working) BD (Answer)	2

Question	Answer	Marks
3a	Pharming is the interception of request sent from a computer to a	2
	legitimate website and redirection to a fake website to steal personal data or credit card details.	
	Phishing is the use of emails and fake websites that appear to be from reputable companies in order to steal personal information such as passwords and credit card details.	2

Question	Answer	Marks			
3b	Two factor authentication is the type of authentication that uses evidence from both something the user knows and something the user owns.				
	 Select either of the following: Possibility of interception when sent wirelessly to user's mobile phone during transmission process Secret algorithm is poorly chosen or accidentally revealed, may be able to find out how to generate OTP without the use of the token 	1			

Question	Answer	Marks
4a	modem	1
4b	NIC	1
4c	router	1
4d	network bridge	1
4e	network hub	1
4f	SSID	1

Question	Answer	Marks
5a	To perform basic mathematical and logical operations.	1
5b	 Data bus is used to transport data between memory and the processor. Address bus is used to specify memory address information. Difference is that data bus transport data in bi-directional while address bus is uni-directional. 	3

Question	Answer	Marks				
6a	RAM - Random Access Memory is the main memory where data	3				
	and instructions are stored temporarily.					
	ROM – Read Only Memory is where data and instructions that rarely					
	need to be change or used for starting up.					
	RAM is volatile whereas ROM is not.					
6b	(1/2 Mark for each point mention)	2				
	Device 1 – External hard disc drive					
	Method – Data stored on Magnetic material					
	Advantage – Large storage capacity, relatively cheaper					
	Disadvantage – Vulnerable to drops and mechanical shocks					
	Device 2 – Flash drives, Memory Cards	2				
	Method - Data is stored in electronics circuits that have no moving					
	parts					
	Advantage – much faster, portable, not as vulnerable					
	Disadvantage – Much more expensive					
	Alternative					
	Device – CD ROM, DVD, Blu-ray					
	Method – Data is stored as very small pits or indentations that can be					
	read or written by a laser					
	Advantage – Large storage capacity of up to gigabytes of data					
	Disadvantage					
	- Data can only be written once for some non-rewritable formats					
	- lower maximum storage capacity than magnetic external storage					
	- Vulnerable to scratches and fingerprints					

Question	Answer				
7	One mark for each correct point				
	Inputs				
	- 150 student names				
	- 150 student weights				
	- 150 student BMI				
	Outputs				
	- Names of students who are obese				
	- Weights of those students who are obese				
	Processes required				
	- Store the data in array / lists				
	- Search for the students whose weight is above the obese weight				
	/ Compare students weight with the obese benchmark				

Question	Answer	Marks
8	- Identifier, is a sequence of characters that follows certain rules	3
	and can be used as a variable name	
	- List, is the data type for storing multiple values in a sequence	
	- Type casting, is the process of converting a value from one data	
	type to another	

Question		Answer	Marks
9			8
	Error	: total = 1000	
	Correction	: total = 0	
	Error	: number + total = total	
	Correction	: total = total+number	
	Error	: IF total < 1000	
	Correction	: IF total > 1000	
	Error	: counter = counter -1	
	Correction	: counter = counter +1	

Question			Answer			Marks
10						5
	X	Pass	Fail	Check	OUTPUT	
		0	0			
	42		1	-8		
	77	1		27		
	85	2		35		
	-5					
	30		2	-20		
	91	3		41		
	-15					
	0				3 ,2	

Question	Answer	Marks
11a		5
	X = (T AND (NOT L)) OR (A AND (NOT T))	

	Ans	wer		Marks
				4
Α	т	L	x	
0	0	0	0	
0	0	1	0	
0	1	0	1	
0	1	1	0	
1	0	0	1	
1	0	1	1	
1	1	0	1	
1	1	1	0	
	A 0 0 0 0 1 1 1 1 1 1 1	A T 0 0 0 0 0 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1	A T L 0 0 0 0 0 0 0 0 1 0 1 0 0 1 0 1 0 1 1 1 0 1 1 1 1 1 1 1 1 1	A T L X 0 0 0 0 0 0 0 1 0 0 0 1 0 1 0 0 1 0 1 0 0 1 0 1 0 1 0 1 1 1 1 0 1 1 1 1 1 1 0 1 1 1 1 0 1

Question	Answer	Marks
12	- Checksum is another method for checking	4
	- Calculated before transmission	
	- If value is less than or equal 255, checksum remains the same	
	- Else value is modulus of 256	
	- This value is sent together with the data and recalculated and	
	compare at the receiving end to check if it matches.	

Question	Answer	Marks
13(a)	- Metropolitan Area Network (MAN)	1
13(b)	- Local Area Network (LAN)	1

Question	Answer	Marks
14a	- Radio Waves	1
	One mark for advantage and one mark for disadvantage	2
	Advantage (any of the following)	
	- Free from clutter	
	- Scalability, easier to add new devices to the network	
	Disadvantage (any of the following)	
	- Less reliable due to potential interference from radio waves and	
	microwaves	
	- Generally slower and lower bandwidth	
	- Higher cost	
	- Less secure	

Question	Answer	
15		8
	- Initialisation of counter and output list	
	- Loop management ten repetitions	
	- Input word	
	- Exit to print out list of words if "Quit" is entered	
	- Checking for word in output list	
	 Appending the word to the output list if word not in list 	
	- Printing out the list of non-repeated words in order	

Sample flowchart



```
count = 0
Output_list = []
INPUT word
WHILE count <10 OR word is not equal to "Quit"
IF word not in Output_list
Output_list = Output_list + word
count = count + 1
Else
count = count + 1
INPUT word
ENDWHILE
OUTPUT Output_list
```

Reference MS

Initialization of array or list for output
User prompt to enter a word
Loop management (exits loop when the word input by the user is "Q"
Within the loop, check whether the word input is found in the output array/list
if yes, ignore
else, append the word input to the output array/list
User prompt to enter the next word.
End of loop
Loop management to print out each item in the output array/list