

Year 10 Computing Exam

Name:

Teacher: Mr Liver

Time allowed = 1 hour

Answer all questions

Answer in the space provided

You may use a calculator

Total mark = 60

1.	<p>Vicky has been on holiday and has taken lots of photos. The memory in her camera is now full and she needs to transfer her photos to an external secondary storage device. Define what is meant by 'secondary storage'. (1)</p>												
2.	<p>Identify the three common storage technologies Vicky can choose from. (3)</p>												
3.	<p>State four characteristics of secondary storage devices that Vicky should consider when choosing a device. (4)</p>												
4.	<p>Gareth has a satellite navigation system (Sat Nav) in his car that uses RAM and ROM. Tick one box in each row to show whether each of the statements is true for the RAM or ROM in Gareth's Sat Nav. (3)</p> <table border="1"> <thead> <tr> <th></th> <th>RAM</th> <th>ROM</th> </tr> </thead> <tbody> <tr> <td>Stores the boot up sequence of the Sat Nab</td> <td></td> <td></td> </tr> <tr> <td>The contents are lost when the Sat Nav is turned off</td> <td></td> <td></td> </tr> <tr> <td>Holds copies of the open maps and routes</td> <td></td> <td></td> </tr> </tbody> </table>		RAM	ROM	Stores the boot up sequence of the Sat Nab			The contents are lost when the Sat Nav is turned off			Holds copies of the open maps and routes		
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5.	<p>Kofi uses his computer to record an audio file of himself playing his guitar. Outline what happens when the computer converts the music into a file. (2)</p>												
6.	<p>Kofi increases the sample rate his computer is using to record his guitar. Explain two effects this will have on Kofi's recording. (4)</p>												
7.	<p>Kofi is e-mailing his recording to a record label. He uses lossy compression to produce the music file. Explain two reasons why using lossy compression is beneficial. (4)</p>												

8.	Order the following units from smallest to largest: GB bit PB byte nibble MB (1)																															
9.	Convert the decimal number 191 into an 8 bit binary number. (1)																															
10.	Convert the hexadecimal number 3E into a decimal number. You must show your working. (2)																															
11.	Add together the following two 8 bit binary numbers. Express your response in an 8 bit binary form. 01101010 + 10010110 (2)																															
12.	Identify the problem this addition has created. (1)																															
13.	Complete the truth table below for the Boolean statement $P = \text{NOT} (A \text{ AND } B)$. (2)																															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">A</th> <th style="width: 20%;">B</th> <th style="width: 20%;">P</th> </tr> </thead> <tbody> <tr> <td>FALSE</td> <td>FALSE</td> <td></td> </tr> <tr> <td>FALSE</td> <td>TRUE</td> <td></td> </tr> <tr> <td>TRUE</td> <td>FALSE</td> <td></td> </tr> <tr> <td>TRUE</td> <td>TRUE</td> <td></td> </tr> </tbody> </table>	A	B	P	FALSE	FALSE		FALSE	TRUE		TRUE	FALSE		TRUE	TRUE																	
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14.	<p>Heath is researching how long, to the nearest minute, each student in his class spends playing computer games in one week (Monday to Friday). He is storing the data in a 2D array. For example, student 1, on Monday (day 0), played 30 minutes of computer games.</p> <p style="text-align: center;">Fig. 2</p> <p style="text-align: center;">Students</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 15%;">0</th> <th style="width: 15%;">1</th> <th style="width: 15%;">2</th> <th style="width: 15%;">3</th> </tr> </thead> <tbody> <tr> <th style="writing-mode: vertical-rl; transform: rotate(180deg);">Days of the week</th> <td>0</td> <td>60</td> <td>30</td> <td>45</td> <td>0</td> </tr> <tr> <td>1</td> <td>180</td> <td>60</td> <td>0</td> <td>60</td> </tr> <tr> <td>2</td> <td>200</td> <td>30</td> <td>0</td> <td>20</td> </tr> <tr> <td>3</td> <td>60</td> <td>10</td> <td>15</td> <td>15</td> </tr> <tr> <td>4</td> <td>100</td> <td>35</td> <td>30</td> <td>45</td> </tr> </tbody> </table> <p>Explain why Heath is using an array to store the data. (2)</p>		0	1	2	3	Days of the week	0	60	30	45	0	1	180	60	0	60	2	200	30	0	20	3	60	10	15	15	4	100	35	30	45
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4	100	35	30	45																												
15.	Identify a data type that could be used to store the number of minutes in this array. (1)																															

16.	State why this data type is the most appropriate. (1)
17.	Heath wants to output the number of minutes student 3 played computer games on Wednesday (day 2). He writes the code: <pre>print (hoursPlayed[3,2])</pre> The output is 20. Write the code to output the number of minutes student 0 played computer games on Wednesday. (1)
18.	State the output if Heath runs the code: <code>print (hoursPlayed[2,1])</code> (1)
19.	State the output if Heath runs the code: <code>print (hoursPlayed[3,1] + hoursPlayed[3,2])</code> (1)
20.	Write an algorithm to output the total number of minutes student 0 played computer games from Monday (day 0) to Friday (day 4) (3)
21.	Heath has the day of the week stored as a number e.g. 0 = Monday, 1 = Tuesday. Write a function that takes the number as an argument and returns the day of the week as a string. (5)

22. Willow has created a hangman program that uses a file to store the words the program can select from.

crime	bait	fright	victory	nymph	loose
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Show the stages of a bubble sort when applied to the data (4)

23. State the purpose of RAM and Virtual memory (5)

24. Explain how an image is stored as a bitmap (3)

25. Draw the logic diagram and truth table for $P=(\text{NOT } A) \text{ OR } B$ and also $P=\text{NOT } (A \text{ OR } B)$ (4)