End of topic test

|  |  |
| --- | --- |
| Name: | Will Dargan |

1. State the capacity in gigabytes of a 2TB portable hard drive. [1]

|  |
| --- |
| 2000 GB |

1. State the denary number 24 in binary. Show your answer in 8 bits. [2]

|  |
| --- |
| 00011000 |

1. Show how the addition of the denary numbers 30 and 20 is performed in binary. [4]

|  |
| --- |
| 00011110  00010100+ |
| 00110010  111 |

1. Explain how an overflow occurs when adding two 8-bit binary numbers. [2]

|  |
| --- |
| When the last two digits in an 8-bit addition are both 1 then a ninth bit is needed. An overflow is when there is not enough space for the final output. |

1. Show the result of a 1-bit binary left shift on the number: 00101100 [1]

|  |
| --- |
| 01011000 |

1. Convert the denary number 128 to hexadecimal. Show your working. [2]

|  |
| --- |
| 128÷16=8  8016 |

1. Convert the hexadecimal number 7E to denary. Show your working. [3]

|  |
| --- |
| 7×16=11210  E16=1410 |

1. Show the result of a 2-bit binary right shift on the number: 00110100 [1]

|  |
| --- |
| 00001101 |

1. Convert the binary number 11111101 into hexadecimal and provide its denary equivalent. Show your working. [3]

|  |
| --- |
| 1111 1101  11112=1510=F16  11012=1310=D16  111111012=FD16 |

1. Braille characters are represented using six dot positions arranged in a rectangle. Each position may contain either a raised dot or not. This is an example of a 6-bit character set. State how many characters can be stored in this character set. [1]

|  |
| --- |
| 62=36 |

**End of test**

**Total 20 marks**

**18 marks**