**Convert the following numbers from binary to decimal: (25 points)**

* 1101 – 13 – 8+4+1
* 0101 0100 – 84 – 4+16+64
* 1011 1110 – 190 – 2+4+8+16+32+128
* 1100 0001 – 193 – 1+64+128
* 0011 1011  - 59 – 1+2+8+16+32

**Represent the following decimal numbers in binary:  (put a space between the bits 1111 1111 for readability) (25 points)**

* 67  - 0100 0011 – 3 + 64
* 97 – 0110 0001 – 1 + 32 + 64
* 183 – 1011 0111 – 1 + 2 + 4 + 16 + 32 + 128
* 42 – 0010 1010 – 2 + 8 + 32
* 101 – 0110 0101 – 1 + 4 + 32 + 64

**What is the largest decimal value that can be represented with (hint – can use calculator) (25 points)**

**(Note : 1 byte = 8 bits)**

* 15 bits – 32,768 – 2^15
* 4 bytes – 4,294,967,296 – 2^32
* 1 byte – 256 – 2^8
* 7 bits – 128 – 2^7
* 25 bits – 33,554,432 – 2^25

**Convert the following binary numbers to hex: (25 points)**

* 0011 1010 – 0x3A – 3 + 10
* 1101 1111 0101 0011 – 0xDF53 – 13 + 15 + 5 + 3
* 0101 0001 1110 – 0x51E – 5 + 1 + 14
* 1011 0000 – 0xB0 – 11 + 0
* 1100 0011 – 0xC3 – 12 + 3