EE 201
My Name
The Date

Homework #1

1. List the binary, octal, and hexadecimal numbers from 16 to 31.

Decimal	Binary	Octal	Hexadecimal
16	10000	20	10
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			

2. What is the exact number of bits in a memory that contains (a) 48K bits; (b) 256M bits; (c) 8G bits?

3. What is the decimal equivalent of the largest binary integer that can be obtained with (a) 8 bits and (b) 32 bits?

4. Convert the following numbers from the given base to the other three bases listed in the table.

Decimal	**Binary**	**Octal**	**Hexadecimal**
369			
	10111101		
		326	
			F3C7

5 There is considerable evidence to suggest that base 20 has historically been used for number systems in a number of cultures.

(a) Write the digits for a base-20 system.

(b) Convert 2000_{10} to base 20.

(c) Convert $BGHJ_{20}$ to decimal.

6. The following calculation was performed by a particular breed of unusually intelligent chicken. If the radix *r* used by the chicken corresponds to its total number of toes, how many toes does the chicken have on each foot? $((35)_r+(24)_r)x(21)_r=(1501)_r$

7. Find the binary representation for each of the following BCD numbers:

BCD	Decimal	Hexadecimal	Binary
(a) 0100 1000 0110 0111			
(b) 0011 0111 1000			

8. Show the bit configuration that represents the decimal number 365 in (a) binary, (b) BCD, (c) ASCII

9. A computer represents information in groups of 48 bits. How many different integers can be represented in (a) binary, (b) BCD, and (c) 8-bit ASCII, all using 48 bits?

10. List the 10 BCD digits with a parity bit giving even parity in the leftmost position (a total of five bits per digit). Repeat with a parity bit for odd parity.

	0	1	2	3	4	5	6	7	8	9
Even	0_0000									
Odd	1_0000									