



Homework # 1 (SU3)

(Binary!)

1. Introduction:

Inside a computer are millions and millions of tiny electronic batteries called capacitors. These batteries (and the switches they work with) can either be ON (1) or OFF (0). Binary is a counting system that works really well with electricity. In the binary counting system (as opposed to decimal) we only use 1's and 0's.

2. Convert these binary numbers to decimal:

10=	_____	10000=	_____
101=	_____	10001=	_____
110=	_____	11010=	_____
10101101=	_____	1111111=	_____

3. Convert these decimal numbers to binary:

Binary place value	32	16	8	4	2	1
3=						
10=						
21=						
38=						
31=						

4. Using the ASCII table on the next page, translate the following coded message.

Letter			
Number	01000001	01101100	01101100

Letter				
Number	01100100	01101111	01101110	01100101



ASCII CONVERSION CHART:

From Computer Desktop Encyclopedia
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Standard ASCII The first 32 characters are control codes.			Extended ASCII (DOS)								
0	Null	33	!	81	Q	128	Ç	174	«	220	┌
1	Start of heading	34	"	82	R	129	ü	175	»	221	┐
2	Start of text	35	#	83	S	130	é	176	▒	222	└
3	End of text	36	\$	84	T	131	à	177	▓	223	┘
4	End of transmit	37	%	85	U	132	ä	178	█	224	α
5	Enquiry	38	&	86	V	133	å	179	▒	225	β
6	Acknowledge	39	'	87	W	134	æ	180	▒	226	γ
7	Audible bell	40	<	88	X	135	ç	181	▒	227	δ
8	Backspace	41	>	89	Y	136	ê	182	▒	228	ε
9	Horizontal tab	42	*	90	Z	137	ë	183	▒	229	σ
10	Line feed	43	+	91	[138	è	184	▒	230	μ
11	Vertical tab	44	.	92	\	139	ì	185	▒	231	τ
12	Form feed	45	-	93]	140	í	186	▒	232	ϑ
13	Carriage return	46	.	94	^	141	î	187	▒	233	θ
14	Shift out	47	/	95	␣	142	ã	188	▒	234	Ω
15	Shift in	48	0	96	␣	143	ä	189	▒	235	δ
16	Data link escape	49	1	97	a	144	é	190	▒	236	ω
17	Device control 1	50	2	98	b	145	æ	191	▒	237	ø
18	Device control 2	51	3	99	c	146	Ⓕ	192	▒	238	€
19	Device control 3	52	4	100	d	147	ð	193	▒	239	π
20	Device control 4	53	5	101	e	148	ö	194	▒	240	≡
21	Neg. acknowledge	54	6	102	f	149	ð	195	▒	241	±
22	Synchronous idle	55	7	103	g	150	û	196	▒	242	≥
23	End trans. block	56	8	104	h	151	ù	197	▒	243	≤
24	Cancel	57	9	105	i	152	ÿ	198	▒	244	∫
25	End of medium	58	:	106	j	153	0	199	▒	245	∫
26	Substitution	59	;	107	k	154	ü	200	▒	246	÷
27	Escape	60	<	108	l	155	ç	201	▒	247	≈
28	File separator	61	=	109	m	156	£	202	▒	248	o
29	Group separator	62	>	110	n	157	¥	203	▒	249	.
30	Record separator	63	?	111	o	158	℞	204	▒	250	.
31	Unit separator	64	@	112	p	159	f	205	▒	251	√
32	Blank space	65	A	113	q	160	á	206	▒	252	n
		66	B	114	r	161	í	207	▒	253	z
		67	C	115	s	162	ó	208	▒	254	■
		68	D	116	t	163	ú	209	▒	255	
		69	E	117	u	164	ñ	210	▒		
		70	F	118	v	165	Ñ	211	▒		
		71	G	119	w	166	æ	212	▒		
		72	H	120	x	167	æ	213	▒		
		73	I	121	y	168	ç	214	▒		
		74	J	122	z	169	r	215	▒		
		75	K	123	<	170	␣	216	▒		
		76	L	124	:	171	½	217	▒		
		77	M	125	>	172	¾	218	▒		
		78	N	126	~	173	ï	219	▒		
		79	O	127	Δ						
		80	P								