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Kelas: B

## MODUL 1

Kode Standar Amerika untuk Pertukaran Informasi atau American Standard Code for Information Interchange (ASCII) merupakan suatu standar internasional dalam kode huruf dan simbol seperti Hex dan Unicode tetapi ASCII lebih bersifat universal, contohnya 124 adalah untuk karakter "|". Ia selalu digunakan oleh komputer dan alat komunikasi lain untuk menunjukkan teks. Kode ASCII sebenarnya memiliki komposisi bilangan biner sebanyak 7 bit. Namun, ASCII disimpan sebagai sandi 8 bit dengan menambakan satu angka 0 sebagai bit significant paling tinggi. Bit tambahan ini sering digunakan untuk uji paritas. Karakter control pada ASCII dibedakan menjadi 5 kelompok sesuai dengan penggunaan yaitu berturut-turut meliputi logical communication, Device control, Information separator, Code extention, dan physical communication. Code ASCII ini banyak dijumpai pada papan ketik (keyboard) computer atau instrument-instrument digital.

## TABEL ASCII:

Nilai ANSI ASCII (Desimal)	Nilai Unicode (Heksa Desimal)	Binner	Karakter
0	00	00000000	NUL
1	01	0000001	SOH
2	02	0000010	STX
3	03	00000011	ETX
4	04	00000100	EOT
5	05	00000101	ENQ
6	06	00000110	ACK
7	07	00000111	BEL
8	08	00001000	BS
9	09	00001001	HT
10	0A	00001010	LF
11	ОВ	00001011	VT
12	0C	00001100	FF
13	0D	00001101	CR
14	0E	00001110	SO
15	OF	00001111	SI
16	10	00010000	DLE
17	11	00010001	DC1
18	12	00010010	DC2
19	13	00010011	DC3
20	14	00010100	DC4
21	15	00010101	NAK
22	16	00010110	SYN
23	17	00010111	ЕТВ

24	18	00011000	CAN
25	19	00011001	EM
26	1A	00011010	SUB
27	1B	00011011	ESC
28	1C	00011100	FS
29	1D	00011101	GS
20	45	00011110	D.C.
30	1E	00011110	RS
31	1F	00011111	US
32	20	00100000	space
33	21	00100001	!
34	22	00100010	п
35	23	00100011	#
36	24	00100100	\$
37	25	00100101	%
38	26	00100110	&
39	27	00100111	1
40	28	00101000	(
41	29	00101001	)
42	2A	00101010	*
43	2B	00101011	+
44	2C	00101100	1
45	2D	00101101	-
46	2E	00101110	
47	2F	00101111	/
48	30	00110000	0
49	31	00110001	1
50	32	00110010	2
51	33	00110011	3
52	34	00110100	4
53	35	00110101	5
54	36	00110110	6
55	37	00110111	7
56	38	00111000	8
57	39	00111001	9
58	3A	00111010	:
58	3A	00111010	:

59       38       00111011       ;         60       3C       00111100       <         61       3D       00111101       =         62       3E       00111111       ?         63       3F       00111111       ?         64       40       01000000       @         65       41       01000001       A         66       42       01000010       B         67       43       0100010       D         68       44       0100010       D         69       45       0100010       F         70       46       01000110       F         71       47       01000111       G         72       48       01001000       H         73       49       01001001       I         74       4A       01001001       K         75       4B       01001011       K         76       4C       01001100       L         77       4D       01001101       N         79       4F       0101100       Q         80       50       01010000       R         81<				
61 3D 00111101 = 62 3E 00111110 > 63 3F 00111111 ? 64 40 01000000 ⊕ 65 41 01000001 A 66 42 01000010 B 67 43 0100011 C 68 44 01000100 D 69 45 0100010 E 70 46 0100011 G 71 47 0100011 G 72 48 0100100 H 73 49 0101001 I 74 4A 0100100 J 75 4B 0100101 K 76 4C 0100110 M 78 4E 0100111 O 79 4F 0100111 O 80 50 0101000 P 81 51 0101000 P 81 51 0101000 P 81 51 0101001 Q 82 52 0101001 R 83 53 0101001 S 84 54 0101010 T 85 55 0101010 T 86 56 0101010 V 87 57 0101011 W 88 58 0101100 X 89 59 0101100 X 89 59 0101100 X 89 59 0101100 X 90 5A 0101000 X	59	3B	00111011	;
62 3E 00111110 > 63 3F 00111111 ? 64 40 01000000 @ 655 41 01000011 A 666 42 01000010 B 67 43 0100011 C 68 44 0100010 D 69 45 0100010 F 70 46 0100011	60	3C	00111100	<
63 3F 00111111 ? 64 40 01000000	61	3D	00111101	=
64	62	3E	00111110	>
65 41 0100001 A 66 42 0100001 B 67 43 0100001 C 68 44 0100010 D 69 45 0100010 E 70 46 0100011 G 71 47 0100011 G 72 48 0100100 H 73 49 0100100 J 74 4A 0100100 J 75 4B 0100110 K 76 4C 0100110 M 78 4E 0100110 N 79 4F 0100111 O 80 50 0101000 P 81 51 0101000 P 81 51 0101000 R 83 53 0101001 S 84 54 0101010 T 85 55 0101010 T 86 56 0101010 V 87 57 0101011 W 88 58 0101100 X 89 59 0101100 X 89 59 0101100 X 89 59 0101100 X 89 59 0101100 X 91 58 0101101 T 91 58 01011101 T 91 58 01011110 T 91 58 010111101 T 91 58 010111101 T 91 58 010111101 T 91 58 010111110 T 91 58 010111111 T 91 58 01011111 T 91 58 010111111 T 91 58 01011111 T 91 58 010111111 T 91 58 010111111 T 91 58 010111111 T 91 58 01011111 T 91 58 010111111 T 91 58 010111111 T 91 58 01011111 T 91 58 01011111 T 91 58 01011111 T 91 58 01011111 T 91 58	63	3F	00111111	?
66       42       01000010       B         67       43       01000011       C         68       44       01000100       D         69       45       01000101       E         70       46       01000110       F         71       47       01000111       G         72       48       01001000       H         73       49       01001001       I         74       4A       01001010       J     To Add Oncolor R  To On	64	40	01000000	@
67 43 01000011 C 68 44 01000100 D 69 45 01000101 E 70 46 01000110 F 71 47 01000111 G 72 48 01001001 I 74 4A 0100100 J 75 4B 0100110 K 76 4C 0100110 M 78 4E 0100111 N 79 4F 0100111 O 80 50 0101000 P 81 51 0101000 P 81 51 0101000 R 83 53 0101001 C 84 54 0101010 T 85 55 01010101 S 86 56 0101010 T 88 58 55 0101010 U 88 58 0101100 T 88 58 59 0101100 T 88 58 59 0101100 T 99 5A 0101101 T 99 5B 0101101 T 90 5A 0101101 T 90 5B 0101110 T 90 5B 0101110 T 90 5B 0101110 T 90 5B 0101110 T 91 5B 0101110 T 91 5B 0101110 T 92 5C 0101110 T 10 T 10 T 10 T 10 T 10 T 10 T	65	41	01000001	А
68	66	42	01000010	В
69	67	43	01000011	С
70       46       01000110       F         71       47       01000111       G         72       48       01001000       H         73       49       01001010       J         74       4A       01001010       J         75       4B       01001100       L         76       4C       01001100       L         77       4D       01001101       M         78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       0101010       T         85       55       0101010       V         86       56       0101011       W         87       57       0101011       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Y         91<	68	44	01000100	D
71       47       01000111       G         72       48       01001000       H         73       49       01001001       I         74       4A       01001010       J         75       4B       01001101       K         76       4C       01001100       L         77       4D       01001101       M         78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010000       R         82       52       01010010       R         83       53       0101001       T         84       54       0101010       T         85       55       0101010       V         86       56       0101011       W         87       57       0101011       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Y         91       5B       01011011       (	69	45	01000101	E
72       48       01001000       H         73       49       01001001       I         74       4A       01001010       J         75       4B       01001010       K         76       4C       01001100       L         77       4D       01001101       M         78       4E       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       0101001       T         84       54       01010100       T         85       55       0101010       U         86       56       0101011       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       0101101       C         91       5B       01011010       N	70	46	01000110	F
73       49       01001001       I         74       4A       01001010       J         75       4B       01001011       K         76       4C       01001100       L         77       4D       01001101       M         78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       0101010       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Y         91       5B       01011010       Y         92       5C       01011100       Y	71	47	01000111	G
74       4A       01001010       J         75       4B       01001011       K         76       4C       01001100       L         77       4D       01001101       M         78       4E       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011010       \         92       5C       01011100       \	72	48	01001000	Н
75	73	49	01001001	I
76       4C       01001100       L         77       4D       01001101       M         78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011010       \         92       5C       01011100       \	74	4A	01001010	J
76       4C       01001100       L         77       4D       01001101       M         78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011010       \         92       5C       01011100       \				
77       4D       01001101       M         78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	75	4B	01001011	К
78       4E       01001110       N         79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	76	4C	01001100	L
79       4F       01001111       O         80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	77	4D	01001101	М
80       50       01010000       P         81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	78	4E	01001110	N
81       51       01010001       Q         82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	79	4F	01001111	0
82       52       01010010       R         83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	80	50	01010000	Р
83       53       01010011       S         84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	81	51	01010001	Q
84       54       01010100       T         85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	82	52	01010010	R
85       55       01010101       U         86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	83	53	01010011	S
86       56       01010110       V         87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	84	54	01010100	Т
87       57       01010111       W         88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	85	55	01010101	U
88       58       01011000       X         89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	86	56	01010110	V
89       59       01011001       Y         90       5A       01011010       Z         91       5B       01011011       [         92       5C       01011100       \	87	57	01010111	W
90 5A 01011010 Z 91 5B 01011011 [ 92 5C 01011100 \	88	58	01011000	Х
91 5B 01011011 [ 92 5C 01011100 \	89	59	01011001	Υ
92 5C 01011100 \	90	5A	01011010	Z
	91	5B	01011011	[
93 5D 01011101 ]	92	5C	01011100	\
	93	5D	01011101	]

94	5E	01011110	۸
95	5F	01011111	-
96	60	01100000	`
97	61	01100001	а
98	62	01100010	b
99	63	01100011	С
100	64	01100100	d
101	65	01100101	е
102	66	01100110	f
103	67	01100111	g
104	68	01101000	h
105	69	01101001	i
106	6A	01101010	j
107	6B	01101011	k
108	6C	01101100	I
109	6D	01101101	m
110	6E	01101110	n
111	6F	01101111	0
112	70	01110000	р
113	71	01110001	q
114	72	01110010	r
115	73	01110011	S
116	74	01110100	t
117	75	01110101	u
118	76	01110110	V
119	77	01110111	W
120	78	01111000	х
121	79	01111001	у
122	7A	01111010	Z
123	7B	01111011	{
124	7C	01111100	
125	7D	01111101	}
126	7E	01111110	~
127	7F	01111111	DEL

Instruksi	Keterangan Singkatan
ACALL	Absolute Call
ADD	Add
ADDC	Add with Carry
AJMP	Absolute Jump
ANL	AND Logic
CJNE	Compare and Jump if Not Equal
CLR	Clear
CPL	Complement
DA	Decimal Adjust
DEC	Decrement
DIV	Divide
DJNZ	Decrement and Jump if Not Zero
INC	Increment
JB	Jump if Bit Set
JBC	Jump if Bit Set and Clear Bit
JC	Jump if Carry Set
JMP	Jump to Address
JNB	Jump if Not Bit Set
JNC	Jump if Carry Not Set
JNZ	Jump if Accumulator Not Zero
JZ	Jump if Accumulator Zero
LCALL	Long Call
LJMP	Long Jump
MOV	Move from Memory
MOVC	Move from Code Memory
MOVX	Move from Extended Memory
MUL	Multiply
NOP	No Operation
ORL	OR Logic
POP	Pop Value From Stack
PUSH	Push Value Onto Stack
RET	Return From Subroutine
RETI	Return From Interrupt
RL	Rotate Left
RLC	Rotate Left through Carry
RR	Rotate Right
RRC	Rotate Right through Carry
SETB	Set Bit
SJMP	Short Jump
SUBB	Subtract With Borrow
SWAP	Swap Nibbles
XCH	Exchange Bytes

XCHD	Exchange Digits
XRL	Exclusive OR Logic