Student: _____

It is okay to **write on test** (use it for scratch paper) but answers must be recorded on the bubble sheet for credit. **Closed book. No notes.** Work strictly from memory. **No calculators. No time limit. Scratch paper okay.**

When an answer requires more than one line, code the first letter or digit of your answer into the first line of the answer sheet; second digit, second line, etc.

EMACS: Which emacs commands have what meaning? (If no match mark J.)
(A) `C-_`   (C) `C-e`   (E) `C-l`   (G) `C-s`   (I) `C-x C-s`
(B) `C-d`   (D) `C-f`   (F) `C-p`   (H) `C-u`

1/5p. save-as current buffer, specify filename
2/5p. save current buffer, same filename
3/5p. undo last change
4/5p. go to previous line (up 1)

EMACS: Which emacs commands have what meaning? (If no match mark J.)
(A) `C-`   (C) `C-h t`   (E) `C-x 2`   (G) `C-z`   (I) `M-x rmail`
(B) `C-e`   (D) `C-n`   (F) `C-x o`   (H) `ESC-x rmail`

5/5p. go to start of line
6/5p. run mail
7/5p. go to end of line
8/5p. hold down CTRL

UNIX: Which unix shell commands have what meaning? (If no match mark J.)
(A) `df`   (B) `fg`   (C) `gcc`   (D) `md`   (E) `mkdir`   (F) `pwd`   (G) `space`   (H) `top`   (I) `volume`

9/5p.   see what is running
10/5p. create a directory
11/5p. see how full the disks are
12/5p. see how much disk space you are using

UNIX: Which unix shell commands have what meaning? (If no match mark J.)
(A) `exit`   (B) `mv`   (C) `pass`   (D) `passwd`   (E) `pwd`   (F) `quit`   (G) `rd`   (H) `rmdir`   (I) `w`

13/5p. edit a file
14/5p. log out
15/5p. change your password
16/5p. delete a directory

RMAIL: Which rmail commands have what meaning? (If no match mark J.)
(A) `C-g`   (B) `C-x C-i`   (C) `d`   (D) `g`   (E) `n`   (F) `s`   (G) `v`   (H) `w`   (I) `x`

17/5p. view the next letter
18/5p. deliver new mail
19/5p. throw away the current letter
20/5p. insert a file
21/5p. write your mailbox to disk

Convert from decimal (base 10) into octal (base 8). Report the last 2 digits (add leading zeros as needed).
22-23/6p.   61   =
24-25/6p.   190   =

Convert from octal into decimal. Report the last 2 digits (add leading zeros as needed).
26-27/6p.   3   =
28-29/6p.   5   =

Convert from decimal into hex (base 16). Report the last 2 digits (add leading zeros as needed).
30-31/6p.   88   =
32-33/6p.   81   =

Convert from hex into decimal. Report the last 2 digits (add leading zeros as needed).
34-35/6p.   48   =
36-37/6p.   40   =

Logical-and in hex. Report the last 2 digits.
38-39/6p.   EC   and   03   =
40-41/6p.   96   and   E3   =
42-43/6p.   DF   and   94   =
44-45/6p.   6B   and   A0   =

Logical-or in hex. Report the last 2 digits.
46-47/6p.   EB   or   5F   =
48-49/6p.   EF   or   D5   =
50-51/6p.   0E   or   F8   =
52-53/6p.   07   or   27   =

Logical-xor in hex. Report the last 2 digits.
54-55/6p.   2F   xor   45   =
56-57/6p.   50   xor   AA   =
58-59/6p.   B6   xor   EC   =
60-61/6p.   23   xor   30   =

Add in hex. Report the last 2 digits.
62-63/6p.   E8   +   7E   =
64-65/6p.   4A   +   52   =
66-67/6p.   03   +   60   =
68-69/6p.   7F   +   40   =

On the following printf questions you are given a list of inputs. For each problem line determine which printf statement created the accompanying outputs. (␣ means space.)

Which of these printf statements created the outputs shown for each problem below? (x is int x;)
(A) printf("␣␣%d",x); (D) printf("␣%02d",x); (G) printf("%+3d",x);
(B) printf("␣%␣2d",x); (E) printf("%␣03d",x); (H) printf("%-+3d",x);
(C) printf("␣%-2d",x); (F) printf("%␣3d",x); (I) printf("%-3d",x);

inputs:	2	77	-85	256	5411	-8500	-25221
70/10p.	␣02	␣77	-85	␣256	␣5411	-8500	-25221
71/10p.	␣␣2	␣␣77	␣-85	␣␣256	␣␣5411	␣-8500	␣-25221
72/10p.	␣␣2	␣␣␣77	␣␣-85	␣␣256	␣␣5411	␣␣-8500	␣␣-25221
73/10p.	+2␣	+77	-85	+256	+5411	-8500	-25221
74/10p.	␣2␣	␣77	␣-85	␣256	␣5411	␣-8500	␣-25221
75/10p.	␣␣2	␣77	-85	␣256	␣5411	-8500	-25221

Which of these printf statements created the outputs shown for each problem below? (x is int x;)
(A) printf("␣␣␣%+d",x); (D) printf("␣%+-3d",x); (G) printf("␣%3d",x);
(B) printf("␣␣%2d",x); (E) printf("␣%+03d",x); (H) printf("%+4d",x);
(C) printf("␣%␣3d",x); (F) printf("␣%+3d",x); (I) printf("%-4d",x);

inputs:	9	45	-18	446	7646	-3268	-20334
76/10p.	9␣␣␣	45␣␣	-18␣	446␣	7646	-3268	-20334
77/10p.	␣␣␣9	␣␣45	␣-18	␣446	␣7646	␣-3268	␣-20334
78/10p.	␣␣+9	␣+45	␣-18	+446	+7646	-3268	-20334
79/10p.	␣+09	␣+45	␣-18	␣+446	␣+7646	␣-3268	␣-20334
80/10p.	␣␣␣9	␣␣45	␣-18	␣␣446	␣␣7646	␣-3268	␣-20334

Which of these printf statements created the outputs shown for each problem below? (x is char * x;)
(A) printf("␣␣␣␣␣␣%s",x); (D) printf("␣␣␣%3s",x); (G) printf("␣%-5s",x);
(B) printf("␣␣␣␣␣%1s",x); (E) printf("␣␣%-4s",x); (H) printf("␣%5s",x);
(C) printf("␣␣␣␣%2s",x); (F) printf("␣␣%4s",x); (I) printf("%-6s",x);

inputs:	""	"x"	"kd"	"hhkc"	"plvjqh"	"jlwyjbky"
81/10p.	␣␣␣␣␣␣	␣␣␣␣␣x	␣␣␣␣␣kd	␣␣hhkc	␣plvjqh	␣jlwyjbky
82/10p.	␣␣␣␣␣␣	x␣␣␣␣␣	kd␣␣␣␣	hhkc␣␣	plvjqh	jlwyjbky
83/10p.	␣␣␣␣␣␣	␣␣␣␣␣x	␣␣␣␣kd	␣␣␣hhkc	␣␣␣plvjqh	␣␣␣jlwyjbky
84/10p.	␣␣␣␣␣␣	␣␣␣␣␣␣x	␣␣␣␣␣␣kd	␣␣␣␣␣␣hhkc	␣␣␣␣␣␣plvjqh	␣␣␣␣␣␣jlwyjbky
85/10p.	␣␣␣␣␣␣	␣x␣␣␣␣	␣kd␣␣␣	␣hhkc␣	␣plvjqh	␣jlwyjbky
86/10p.	␣␣␣␣␣␣	␣␣␣␣␣x	␣␣␣␣␣kd	␣␣␣␣␣hhkc	␣␣␣␣␣plvjqh	␣␣␣␣␣jlwyjbky

Which of these printf statements created the outputs shown for each problem below? (x is double x;)
(A) printf("␣␣␣%+7.0f",x); (D) printf("␣␣␣%0+7.2f",x); (G) printf("␣␣␣%7.2f",x);
(B) printf("␣␣␣%+7.2f",x); (E) printf("␣␣␣%07.0f",x); (H) printf("%10.0f",x);
(C) printf("␣␣␣%0+7.0f",x); (F) printf("␣␣␣%07.2f",x); (I) printf("%10f",x);

inputs:	2	4.37	1.4987	162711.866970
87/10p.	␣␣␣0000002	␣␣␣0000004	␣␣␣0000001	␣␣␣0162712
88/10p.	␣␣2.000000	␣␣4.370000	␣␣1.498700	162711.866970
89/10p.	␣␣␣+000002	␣␣␣+000004	␣␣␣+000001	␣␣␣+162712
90/10p.	␣␣␣␣␣␣␣␣+2	␣␣␣␣␣␣␣␣␣+4	␣␣␣␣␣␣␣␣␣+1	␣␣␣+162712
91/10p.	␣␣␣0002.00	␣␣␣0004.37	␣␣␣0001.50	␣␣␣162711.87
92/10p.	␣␣␣␣␣␣␣␣␣2	␣␣␣␣␣␣␣␣␣4	␣␣␣␣␣␣␣␣␣1	␣␣␣␣162712

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Precedence: What is the value of each expression? Mark (I) for error, (J) for none of the above.

93/7p.	3-2&&9>=1-5	(A) -99	(B) -4	(C) -3	(D) 1	(E) 2	(F) 46	(G) 72	(H) 93
94/7p.	5+2<=1!=7*5	(A) -88	(B) 0	(C) 5	(D) 6	(E) 9	(F) 10	(G) 25	(H) 87
95/7p.	4+9||1&&9-9	(A) -71	(B) -27	(C) -8	(D) -4	(E) 0	(F) 1	(G) 5	(H) 73
96/7p.	8-0<6>=5-3	(A) -3	(B) 0	(C) 1	(D) 4	(E) 5	(F) 8	(G) 10	(H) 11
97/7p.	1>=7!=5-6+8	(A) -62	(B) -49	(C) -16	(D) -13	(E) -6	(F) 0	(G) 1	(H) 9
98/7p.	2*0==2>=0+6	(A) -99	(B) 0	(C) 1	(D) 2	(E) 7	(F) 8	(G) 12	(H) 14
99/7p.	8*8+0<=5>=4	(A) -94	(B) -68	(C) -52	(D) 0	(E) 1	(F) 64	(G) 65	(H) 72
100/7p.	7/7||4<1-7	(A) -7	(B) -6	(C) -2	(D) -1	(E) 0	(F) 1	(G) 7	(H) 93
101/7p.	9+8<4&&1*9	(A) -27	(B) -5	(C) 0	(D) 1	(E) 9	(F) 10	(G) 63	(H) 92
102/7p.	0-0>0||1+4	(A) -5	(B) -4	(C) 0	(D) 1	(E) 3	(F) 5	(G) 22	(H) 24
103/7p.	7+2<6<7+9	(A) 0	(B) 1	(C) 7	(D) 9	(E) 10	(F) 16	(G) 22	(H) 94
104/7p.	9||9>4+6*2	(A) -64	(B) -43	(C) -2	(D) -1	(E) 0	(F) 1	(G) 2	(H) 12
105/7p.	7>=8||7+3*5	(A) -64	(B) -35	(C) 0	(D) 5	(E) 16	(F) 20	(G) 73	(H) 76
106/7p.	4+6==5||9*6	(A) 0	(B) 1	(C) 4	(D) 6	(E) 10	(F) 24	(G) 30	(H) 46
107/7p.	3/1>=5<0*8	(A) 0	(B) 1	(C) 3	(D) 8	(E) 12	(F) 24	(G) 35	(H) 80
108/7p.	6/8>8!=5+9	(A) -84	(B) -69	(C) -35	(D) 0	(E) 1	(F) 6	(G) 9	(H) 96
109/7p.	5%2>7>=3-4	(A) -96	(B) -89	(C) -72	(D) -4	(E) -3	(F) 0	(G) 1	(H) 62
110/7p.	8/9>0==9+1	(A) -70	(B) -57	(C) -1	(D) 0	(E) 8	(F) 9	(G) 15	(H) 21
111/7p.	4<=8<=3+9*4	(A) -50	(B) 0	(C) 1	(D) 4	(E) 36	(F) 37	(G) 40	(H) 62
112/7p.	1+3!=1<=1*7	(A) -78	(B) -55	(C) 0	(D) 1	(E) 2	(F) 7	(G) 14	(H) 60
113/7p.	6*1!=9==8+4	(A) -89	(B) -34	(C) 0	(D) 1	(E) 4	(F) 5	(G) 10	(H) 30
114/7p.	4-4!=6<0*4	(A) -92	(B) -77	(C) 0	(D) 4	(E) 9	(F) 12	(G) 16	(H) 88
115/7p.	2/3>=8<=3-5	(A) -75	(B) -69	(C) -8	(D) -4	(E) -3	(F) -1	(G) 0	(H) 2
116/7p.	4/7||5||6*8	(A) -73	(B) -63	(C) -53	(D) 1	(E) 4	(F) 8	(G) 13	(H) 39
117/7p.	6*9||7!=5+7	(A) -80	(B) -17	(C) -16	(D) 1	(E) 4	(F) 6	(G) 8	(H) 13
118/7p.	4+3||2>=8%3	(A) -66	(B) -19	(C) -11	(D) 1	(E) 2	(F) 4	(G) 5	(H) 30
119/7p.	7/7>=5>8-6	(A) -83	(B) -55	(C) -26	(D) -6	(E) -2	(F) 0	(G) 1	(H) 7
120/7p.	6-4*5>4<0	(A) -19	(B) 0	(C) 1	(D) 2	(E) 5	(F) 6	(G) 36	(H) 47
121/7p.	6-8<=1<7+5	(A) -84	(B) -74	(C) -9	(D) 0	(E) 1	(F) 5	(G) 10	(H) 11
122/7p.	5+9<=1&&6+2	(A) -64	(B) -49	(C) 0	(D) 2	(E) 5	(F) 7	(G) 40	(H) 58
123/7p.	6*7==8<4-9	(A) -79	(B) -70	(C) -54	(D) -48	(E) -9	(F) -8	(G) -3	(H) 0
124/7p.	4*6+3>2>1	(A) -89	(B) -59	(C) -27	(D) 1	(E) 4	(F) 24	(G) 25	(H) 28
125/7p.	2<=9||5+6-9	(A) -82	(B) -62	(C) -3	(D) -2	(E) 0	(F) 1	(G) 62	(H) 77
126/7p.	8/3+4>9&&0	(A) -98	(B) -63	(C) 0	(D) 1	(E) 2	(F) 3	(G) 8	(H) 14

How many times does the body of the loop execute? (Mark 9 if 9 or more.)

127/7p. `int j; for( j=0; j>=-1; --j ) body;` — 2

128/7p. `int t; for( t=-1; t>-8; ++t ) body;` — 9

129/7p. `int b=-7; while( b++ != 1 ) body;` — 8

130/7p. `int g=9; while( g++ < 12 ) body;` — 3

131/7p. `int g; for( g=-4; g!=1; g++ ) body;` — 5

132/7p. `int n=3; while( n-- != 0 ) body;` — 3

133/7p. `int t=-7; do body; while( t++ != -11 );` — 9

134/7p. `int n=8; while( n++ != 9 ) body;` — 1

135/7p. `int y; for( y=-9; y<=-5; ++y ) body;` — 5

136/7p. `int m=0; do body; while( --m > -1 );` — 1

137/7p. `int w=-5; while( w++ < -1 ) body;` — 4

138/7p. `int k=-1; while( ++k <= 2 ) body;` — 3

139/7p. `int i; for( i=10; i!=9; --i ) body;` — 1

140/7p. `int s=-3; while( --s >= -3 ) body;` — 0

141/7p. `int d=2; while( --d > -2 ) body;` — 3

142/7p. `int t=2; do body; while( t-- != -3 );` — 6

143/7p. `int u; for( u=-2; u>-5; --u ) body;` — 3

144/7p. `int i; for( i=-10; i<=-3; ++i ) body;` — 8

145/7p. `int j; for( j=-6; j<-4; j++ ) body;` — 2

146/7p. `int w; for( w=-8; w<-3; w-- ) body;` — 9

147/7p. `int p=4; do body; while( --p != 11 );` — 9

148/7p. `int j; for( j=-6; j<=-1; ++j ) body;` — 6

149/7p. `int d=10; while( ++d < 16 ) body;` — 5

150/7p. `int n=-1; do body; while( n++ != 0 );` — 2

151/7p. `int j; for( j=9; j<16; ++j ) body;` — 7

152/7p. `int n=2; do body; while( ++n <= 9 );` — 8

153/7p. `int e=-7; do body; while( e++ != 0 );` — 8

154/7p. `int a=-3; do body; while( ++a >= -10 );` — 9

155/7p. `int e=-10; do body; while( e-- != -11 );` — 2

156/7p. `int t; for( t=-4; t>-8; --t ) body;` — 4

157/7p. `int x=1; while( x++ < 5 ) body;` — 4

158/7p. `int u; for( u=-1; u<=3; u++ ) body;` — 5

159/7p. `int q=-7; do body; while( ++q < -5 );` — 2

160/7p. `int i; for( i=7; i!=12; --i ) body;` — 9

Total points 955.

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Answer Key (points per line)

1 (5). J	48-49 (3). FF	93 (7). D	127 (7). 2
2 (5). I	50-51 (3). FE	94 (7). J	128 (7). 9
3 (5). A	52-53 (3). 27	95 (7). F	129 (7). 8
4 (5). F	54-55 (3). 6A	96 (7). B	130 (7). 3
5 (5). J	56-57 (3). FA	97 (7). G	131 (7). 5
6 (5). I	58-59 (3). 5A	98 (7). C	132 (7). 3
7 (5). B	60-61 (3). 13	99 (7). D	133 (7). 9
8 (5). A	62-63 (3). 66	100 (7). F	134 (7). 1
9 (5). H	64-65 (3). 9C	101 (7). C	135 (7). 5
10 (5). E	66-67 (3). 63	102 (7). D	136 (7). 1
11 (5). A	68-69 (3). BF	103 (7). B	137 (7). 4
12 (5). J	70 (10). E	104 (7). F	138 (7). 3
13 (5). J	71 (10). B	105 (7). J	139 (7). 1
14 (5). A	72 (10). A	106 (7). B	140 (7). 0
15 (5). D	73 (10). H	107 (7). A	141 (7). 3
16 (5). H	74 (10). C	108 (7). E	142 (7). 6
17 (5). E	75 (10). F	109 (7). G	143 (7). 3
18 (5). D	76 (10). I	110 (7). D	144 (7). 8
19 (5). C	77 (10). G	111 (7). C	145 (7). 2
20 (5). J	78 (10). H	112 (7). D	146 (7). 9
21 (5). F	79 (10). E	113 (7). C	147 (7). 9
22-23 (3). 75	80 (10). C	114 (7). C	148 (7). 6
24-25 (3). 76	81 (10). H	115 (7). G	149 (7). 5
26-27 (3). 03	82 (10). I	116 (7). D	150 (7). 2
28-29 (3). 05	83 (10). D	117 (7). D	151 (7). 7
30-31 (3). 58	84 (10). A	118 (7). D	152 (7). 8
32-33 (3). 51	85 (10). G	119 (7). F	153 (7). 8
34-35 (3). 72	86 (10). B	120 (7). B	154 (7). 9
36-37 (3). 64	87 (10). E	121 (7). E	155 (7). 2
38-39 (3). 00	88 (10). I	122 (7). C	156 (7). 4
40-41 (3). 82	89 (10). C	123 (7). H	157 (7). 4
42-43 (3). 94	90 (10). A	124 (7). J	158 (7). 5
44-45 (3). 20	91 (10). F	125 (7). F	159 (7). 2
46-47 (3). FF	92 (10). H	126 (7). C	160 (7). 9

Total points 955.

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IS 131

Final Exam

v926802559

Bro Colton

IS 131 --- Final Exam --- v926802559 --- Bro Colton