

Comprehensive Final Exam, Testing Center portion

Do NOT write on this test. Record all answers on the bubble sheet. **Closed book. No notes.** Work strictly from memory. **No calculators. No time limit. Scratch paper okay.**

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

1/1p.	$9/3*2/3+5$	(A) -10	(B) 0	(C) 1	(D) 5	(E) 7	(F) 9	(G) 33	(H) 83
2/1p.	$6/3/8/6+1$	(A) -84	(B) -74	(C) -73	(D) 0	(E) 1	(F) 2	(G) 3	(H) 99
3/1p.	$9*3\%5*3\%5$	(A) -74	(B) 1	(C) 2	(D) 12	(E) 24	(F) 27	(G) 36	(H) 81
4/1p.	$6*3\%2*4/2$	(A) -75	(B) 0	(C) 1	(D) 6	(E) 9	(F) 12	(G) 29	(H) 93
5/1p.	$4-1\%9*7-3$	(A) -81	(B) -56	(C) -33	(D) -6	(E) 0	(F) 3	(G) 12	(H) 18
6/1p.	$7+7\%8+1\%5$	(A) -10	(B) 0	(C) 2	(D) 4	(E) 5	(F) 9	(G) 14	(H) 15
7/1p.	$3-5\%5\%4-6$	(A) -3	(B) -2	(C) -1	(D) 0	(E) 9	(F) 35	(G) 49	(H) 83
8/1p.	$5-2/9+7*3$	(A) -68	(B) -16	(C) -6	(D) 10	(E) 15	(F) 21	(G) 26	(H) 36
9/1p.	$4*3+3/8-1$	(A) -4	(B) -1	(C) 0	(D) 2	(E) 3	(F) 8	(G) 11	(H) 12
10/1p.	$8\%4<9!=8+5$	(A) 0	(B) 1	(C) 2	(D) 3	(E) 5	(F) 6	(G) 25	(H) 46
11/1p.	$4*7+7-3/2$	(A) 16	(B) 20	(C) 22	(D) 26	(E) 30	(F) 32	(G) 36	(H) 52
12/1p.	$5/1/9-6+6$	(A) -88	(B) -12	(C) -5	(D) -2	(E) -1	(F) 5	(G) 21	(H) 31
13/1p.	$8+7*5\%2/5$	(A) -8	(B) 0	(C) 1	(D) 3	(E) 5	(F) 8	(G) 9	(H) 54
14/1p.	$1/5+6-6-1$	(A) -7	(B) -5	(C) -1	(D) 0	(E) 1	(F) 25	(G) 39	(H) 82
15/1p.	$9/0 3!=3*4$	(A) 1	(B) 2	(C) 4	(D) 5	(E) 9	(F) 36	(G) 39	(H) 93
16/1p.	$6+1>1<1-5$	(A) -93	(B) -5	(C) -4	(D) 0	(E) 2	(F) 6	(G) 7	(H) 13
17/1p.	$9-2\&\&0\&\&4+8$	(A) -74	(B) 0	(C) 8	(D) 9	(E) 17	(F) 29	(G) 55	(H) 86
18/1p.	$2\%2/3-8-9$	(A) -69	(B) -42	(C) -17	(D) -15	(E) -9	(F) 0	(G) 1	(H) 42
19/1p.	$2+5/1==2<6$	(A) -90	(B) -84	(C) -50	(D) -44	(E) 0	(F) 1	(G) 2	(H) 7
20/1p.	$4+8!=4>5+3$	(A) -44	(B) -3	(C) 0	(D) 3	(E) 4	(F) 5	(G) 8	(H) 75
21/1p.	$3-1\%8-4/4$	(A) -92	(B) -18	(C) -1	(D) 0	(E) 2	(F) 4	(G) 26	(H) 87
22/1p.	$7+5-7-1/6$	(A) -97	(B) -41	(C) 0	(D) 1	(E) 5	(F) 6	(G) 10	(H) 11
23/1p.	$7+5/6/2*6$	(A) -97	(B) 0	(C) 6	(D) 7	(E) 13	(F) 24	(G) 42	(H) 48
24/1p.	$0\%4-2-1-3$	(A) -94	(B) -53	(C) -6	(D) -3	(E) 0	(F) 2	(G) 33	(H) 52
25/1p.	$7/4*9-4/6$	(A) -43	(B) -19	(C) -1	(D) 0	(E) 2	(F) 9	(G) 18	(H) 71
26/1p.	$5+9/9!=4\&\&2$	(A) -33	(B) -24	(C) 0	(D) 1	(E) 5	(F) 6	(G) 14	(H) 92
27/1p.	$2\%5!=2<9-5$	(A) -70	(B) -66	(C) -21	(D) -5	(E) -2	(F) 0	(G) 1	(H) 75
28/1p.	$7+3<=2<5/2$	(A) -62	(B) -36	(C) 0	(D) 1	(E) 3	(F) 4	(G) 7	(H) 21
29/1p.	$6-0\%4/2-4$	(A) -52	(B) -35	(C) -4	(D) -3	(E) -1	(F) 0	(G) 6	(H) 10
30/1p.	$2-8<=6<=9+5$	(A) -62	(B) -4	(C) -3	(D) 1	(E) 2	(F) 6	(G) 7	(H) 84
31/1p.	$4/8\%3-4-7$	(A) -60	(B) -11	(C) -9	(D) -7	(E) -1	(F) 3	(G) 5	(H) 46
32/1p.	$1-7-8\%9+8$	(A) -22	(B) -14	(C) -6	(D) 1	(E) 2	(F) 10	(G) 12	(H) 41
33/1p.	$2\%2/8-5+9$	(A) -33	(B) -14	(C) -12	(D) 0	(E) 2	(F) 4	(G) 9	(H) 58

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

34/1p. int v=-9; while(++v > -15) body;
35/1p. int v=9; do body; while(--v > 6);
36/1p. int p=8; while(p++ <= 9) body;
37/1p. int m; for(m=3; m<7; m++) body;
38/1p. int w; for(w=7; w>7; w--) body;
39/1p. int t=4; while(t-- >= 5) body;
40/1p. int c; for(c=3; c>-3; --c) body;
41/1p. int c=1; do body; while(--c != 4);
42/1p. int a=3; do body; while(++a < 8);
43/1p. int h=2; do body; while(h++ <= 3);
44/1p. int y=2; do body; while(y++ < 7);
45/1p. int g=0; while(++g <= 3) body;
46/1p. int f=-6; do body; while(f++ <= -6);
47/1p. int y=8; do body; while(y-- >= 5);
48/1p. int h=10; while(++h > 7) body;
49/1p. int f=-3; do body; while(++f != 1);
50/1p. int r=0; while(r++ >= -6) body;
51/1p. int i=0; do body; while(i-- > 0);
52/1p. int s; for(s=-6; s!=-3; s++) body;
53/1p. int p=1; do body; while(++p > -5);
54/1p. int m; for(m=-3; m<=-1; m++) body;
55/1p. int a=0; do body; while(--a != -2);
56/1p. int f; for(f=2; f!=10; ++f) body;
57/1p. int m=6; do body; while(++m != 11);
58/1p. int b; for(b=-3; b!=4; b--) body;
59/1p. int g=-7; do body; while(++g < -6);
60/1p. int j; for(j=-5; j<1; j++) body;
61/1p. int r; for(r=2; r<6; --r) body;
62/1p. int i; for(i=0; i!=7; ++i) body;
63/1p. int d=5; do body; while(d-- >= -1);
64/1p. int d; for(d=8; d<10; d++) body;
65/1p. int u; for(u=-1; u>=-8; u--) body;
66/1p. int t=-2; do body; while(t++ <= -1);
67/1p. int b=6; while(b++ < 7) body;
68/1p. int a=2; while(a-- > -4) body;

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("␣␣%d␣␣␣␣",x); (G) printf("%␣07d",x);
 (B) printf("␣␣␣␣%+3d␣",x); (E) printf("␣%4d␣␣",x); (H) printf("%-6d␣",x);
 (C) printf("␣␣␣␣%03d␣",x); (F) printf("%␣-7d",x); (I) printf("%0␣5d␣␣",x);

inputs:	<u>5</u>	<u>-3</u>	<u>1183261924</u>	<u>-2022794246</u>
69/1p.	␣␣␣␣5␣␣	␣␣␣-3␣␣	␣1183261924␣␣	␣-2022794246␣␣
70/1p.	␣0005␣␣	-0003␣␣	␣1183261924␣␣	-2022794246␣␣
71/1p.	␣␣5␣␣␣␣	␣␣-3␣␣␣␣	␣␣1183261924␣␣␣␣	␣␣-2022794246␣␣␣␣
72/1p.	5␣␣␣␣␣␣	-3␣␣␣␣␣␣	1183261924␣	-2022794246␣

Which of these printf statements created the outputs shown for each problem below? (x is int x;)

- (A) printf("␣␣%+05d",x); (D) printf("␣%␣03d␣␣␣␣",x); (G) printf("%+-7d",x);
 (B) printf("␣␣%-␣5d",x); (E) printf("␣%-2d␣␣␣␣",x); (H) printf("%07d",x);
 (C) printf("␣%␣-6d",x); (F) printf("␣%0+6d",x); (I) printf("%7d",x);

inputs:	<u>5</u>	<u>-6</u>	<u>1091033962</u>	<u>-1177083109</u>
73/1p.	␣␣5␣␣␣␣	␣-6␣␣␣␣	␣␣1091033962	␣-1177083109
74/1p.	0000005	-000006	1091033962	-1177083109
75/1p.	␣␣+0005	␣␣-0006	␣␣+1091033962	␣␣-1177083109
76/1p.	␣5␣␣␣␣␣␣	␣-6␣␣␣␣	␣1091033962␣␣␣␣	␣-1177083109␣␣␣␣

Which of these printf statements created the outputs shown for each problem below? (x is int x;)

- (A) printf("␣␣␣␣%␣3d␣␣",x); (D) printf("␣␣%+6d",x); (G) printf("␣%+7d",x);
 (B) printf("␣␣␣␣%+3d␣␣",x); (E) printf("␣␣%02d␣␣␣␣",x); (H) printf("%␣8d",x);
 (C) printf("␣␣␣␣%05d",x); (F) printf("␣␣%4d␣␣",x); (I) printf("%-␣6d␣␣",x);

inputs:	<u>4</u>	<u>-8</u>	<u>1084253467</u>	<u>-2123694005</u>
77/1p.	␣␣␣␣␣␣+4	␣␣␣␣␣␣-8	␣␣+1084253467	␣␣-2123694005
78/1p.	␣␣␣␣␣4␣␣	␣␣␣␣␣-8␣␣	␣␣␣␣1084253467␣␣	␣␣␣␣-2123694005␣␣
79/1p.	␣␣␣␣␣␣+4	␣␣␣␣␣␣-8	␣+1084253467	␣-2123694005
80/1p.	␣␣04␣␣␣␣	␣␣-8␣␣␣␣	␣␣1084253467␣␣␣␣	␣␣-2123694005␣␣␣␣

Which of these printf statements created the outputs shown for each problem below? (x is int x;)

- (A) printf("␣␣␣␣%␣-3d␣␣",x); (D) printf("␣␣␣␣%04d␣␣",x); (G) printf("␣%-␣6d␣␣",x);
 (B) printf("␣␣␣␣%02d␣␣␣␣",x); (E) printf("␣%␣08d",x); (H) printf("␣%-5d␣␣␣␣",x);
 (C) printf("␣␣␣␣%␣4d␣␣",x); (F) printf("␣%␣8d",x); (I) printf("%␣-9d",x);

inputs:	<u>7</u>	<u>-3</u>	<u>1668749959</u>	<u>-1451115344</u>
81/1p.	␣␣␣␣␣␣␣7	␣␣␣␣␣␣␣-3	␣␣1668749959	␣-1451115344
82/1p.	␣7␣␣␣␣␣␣	␣-3␣␣␣␣␣␣	␣1668749959␣␣␣	␣-1451115344␣␣␣
83/1p.	␣␣␣␣␣␣7␣␣	␣␣␣␣␣␣-3␣␣	␣␣␣␣1668749959␣␣	␣␣␣␣-1451115344␣␣
84/1p.	␣␣7␣␣␣␣␣␣	␣-3␣␣␣␣␣␣	␣␣1668749959␣␣	␣-1451115344␣␣

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("%-4s",x);
 (B) printf("____%1s_",x); (E) printf("_%3s",x); (H) printf("%2s____",x);
 (C) printf("_%-2s_",x); (F) printf("_%s____",x); (I) printf("%4s",x);

inputs:	<u>" "</u>	<u>"k"</u>	<u>"fg"</u>	<u>"gwyb"</u>	<u>"hhckpc"</u>	<u>"cckqhqqkq"</u>
85/1p.	____	____k__	____fg__	____gwyb__	____hhckpc__	____cckqhqqkq__
86/1p.	____	____k	____fg	____gwyb	____hhckpc	____cckqhqqkq
87/1p.	____	____k__	____fg__	____gwyb__	____hhckpc__	____cckqhqqkq__
88/1p.	____	____k__	____fg__	____gwyb__	____hhckpc__	____cckqhqqkq__

Which of these printf statements created the outputs shown for each problem below? (x is char * x;)

- (A) printf("____%-2s_",x); (D) printf("____%3s_",x); (G) printf("%-4s____",x);
 (B) printf("____%s____",x); (E) printf("____%s____",x); (H) printf("%-5s_",x);
 (C) printf("____%1s____",x); (F) printf("____%5s",x); (I) printf("%-6s",x);

inputs:	<u>" "</u>	<u>"k"</u>	<u>"vz"</u>	<u>"xbhf"</u>	<u>"fpwxxv"</u>	<u>"zpqxhzpk"</u>
89/1p.	____	____k____	____vz____	____xbhf____	____fpwxxv____	____zpqxhzpk____
90/1p.	____	____k____	____vz____	____xbhf____	____fpwxxv____	____zpqxhzpk____
91/1p.	____	____k____	____vz____	____xbhf____	____fpwxxv____	____zpqxhzpk____
92/1p.	____	____k____	____vz____	____xbhf____	____fpwxxv____	____zpqxhzpk____

Which of these printf statements created the outputs shown for each problem below? (x is double x;)

- (A) printf("____%0+10.6f",x); (D) printf("_%012.2f_",x); (G) printf("%013.4f",x);
 (B) printf("_%+011.4f____",x); (E) printf("_%13.4f",x); (H) printf("%014f",x);
 (C) printf("_%+011.6f____",x); (F) printf("%011.2f____",x); (I) printf("%14.0f",x);

inputs:	<u>7</u>	<u>-1.91</u>	<u>-1.0457</u>	<u>-11178.113141</u>
93/1p.	____000000007.00__	____-00000001.91__	____-00000001.05__	____-00011178.11__
94/1p.	____+00007.0000____	____-00001.9100____	____-00001.0457____	____-11178.1131____
95/1p.	____00000007.00____	____-0000001.91____	____-0000001.05____	____-0011178.11____
96/1p.	____+007.000000____	____-001.910000____	____-001.045700____	____-11178.113141____

Which of these printf statements created the outputs shown for each problem below? (x is double x;)

- (A) printf("____%010.2f_",x); (D) printf("_%0+13f",x); (G) printf("%+14.6f",x);
 (B) printf("____%11.2f_",x); (E) printf("_%013f",x); (H) printf("%014f",x);
 (C) printf("_%0+11.6f____",x); (F) printf("%+13.4f",x); (I) printf("%14.0f",x);

inputs:	<u>9</u>	<u>4.42</u>	<u>-4.6440</u>	<u>-414829.566690</u>
97/1p.	____+9.0000____	____+4.4200____	____-4.6440____	____-414829.5667____
98/1p.	____00000009.00____	____00000004.42____	____-000004.64____	____-414829.57____
99/1p.	____+00009.000000____	____+00004.420000____	____-00004.644000____	____-414829.566690____
100/1p.	____9.00____	____4.42____	____-4.64____	____-414829.57____

Total points 100.

Answer Key (points per line)

1 (1).	E (7)	35 (1).	3	69 (1).	E
2 (1).	E (1)	36 (1).	2	70 (1).	I
3 (1).	B (1)	37 (1).	4	71 (1).	D
4 (1).	B (0)	38 (1).	0	72 (1).	H
5 (1).	D (-6)	39 (1).	0	73 (1).	C
6 (1).	H (15)	40 (1).	6	74 (1).	H
7 (1).	A (-3)	41 (1).	9	75 (1).	A
8 (1).	G (26)	42 (1).	5	76 (1).	E
9 (1).	G (11)	43 (1).	3	77 (1).	D
10 (1).	B (1)	44 (1).	6	78 (1).	A
11 (1).	J (34)	45 (1).	3	79 (1).	G
12 (1).	J (0)	46 (1).	2	80 (1).	E
13 (1).	F (8)	47 (1).	5	81 (1).	F
14 (1).	C (-1)	48 (1).	9	82 (1).	H
15 (1).	I (error)	49 (1).	4	83 (1).	C
16 (1).	D (0)	50 (1).	9	84 (1).	G
17 (1).	B (0)	51 (1).	1	85 (1).	A
18 (1).	C (-17)	52 (1).	3	86 (1).	E
19 (1).	E (0)	53 (1).	9	87 (1).	C
20 (1).	J (1)	54 (1).	3	88 (1).	B
21 (1).	J (1)	55 (1).	2	89 (1).	I
22 (1).	E (5)	56 (1).	8	90 (1).	C
23 (1).	D (7)	57 (1).	5	91 (1).	G
24 (1).	C (-6)	58 (1).	9	92 (1).	B
25 (1).	F (9)	59 (1).	1	93 (1).	D
26 (1).	D (1)	60 (1).	6	94 (1).	B
27 (1).	G (1)	61 (1).	9	95 (1).	F
28 (1).	D (1)	62 (1).	7	96 (1).	C
29 (1).	J (2)	63 (1).	8	97 (1).	F
30 (1).	D (1)	64 (1).	2	98 (1).	A
31 (1).	B (-11)	65 (1).	8	99 (1).	D
32 (1).	C (-6)	66 (1).	3	100 (1).	B
33 (1).	F (4)	67 (1).	1		
34 (1).	9	68 (1).	6		

Total points 100.