

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.**

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("uuuuu%3d",x);` (D) `printf("uuu%+4d",x);` (G) `printf("%+7d",x);`
 (B) `printf("uuuu%03d",x);` (E) `printf("uu%u-4d",x);` (H) `printf("%0+8d",x);`
 (C) `printf("uuu%u-3d",x);` (F) `printf("uu%4d",x);` (I) `printf("%8d",x);`

inputs:	<u>8</u>	<u>-7</u>	<u>1286578598</u>	<u>-1134008924</u>
1/1p.	uuuuuuu8	uuuuuu-7	uuuuu1286578598	uuuuu-1134008924
2/1p.	uuuuuu+8	uuuuuu-7	u+1286578598	u-1134008924
3/1p.	+0000008	-0000007	+1286578598	-1134008924
4/1p.	uuu8uuuu	uu-7uuuu	uuu1286578598uu	uu-1134008924uu
5/1p.	uuuu008u	uuuu-07u	uuuu1286578598u	uuuu-1134008924u

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

- (A) `printf("uuuu%u03d",x);` (D) `printf("uu%-u3d",x);` (G) `printf("%u0u5d",x);`
 (B) `printf("uuuu%d",x);` (E) `printf("uu%0+4d",x);` (H) `printf("%u6d",x);`
 (C) `printf("uu%+4d",x);` (F) `printf("%u04d",x);` (I) `printf("%u5d",x);`

inputs:	<u>0</u>	<u>-5</u>	<u>1693555024</u>	<u>-1925111101</u>
6/1p.	uu+000u	uu-005u	uu+1693555024u	uu-1925111101u
7/1p.	uuuu+0u	uuuu-5u	uu+1693555024u	uu-1925111101u
8/1p.	uuuuu00	uuuu-05	uuuuu1693555024	uuuu-1925111101
9/1p.	uuuuuu0	uuuuuu-5	u1693555024	u-1925111101
10/1p.	uu000uu	u-005uu	uu1693555024uu	u-1925111101uu

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

- (A) `printf("uuuuu%+-3d",x);` (D) `printf("uuu%-4d",x);` (G) `printf("uu%-6d",x);`
 (B) `printf("uuuu%+5d",x);` (E) `printf("uuu%5d",x);` (H) `printf("uu%4d",x);`
 (C) `printf("uuu%+4d",x);` (F) `printf("uu%-4d",x);` (I) `printf("%-2d",x);`

inputs:	<u>8</u>	<u>-9</u>	<u>1478357162</u>	<u>-1348780979</u>
11/1p.	uu8uuuuuuu	uu-9uuuuuuu	uu1478357162uu	uu-1348780979uu
12/1p.	uuuuu8uuuu	uuuu-9uuuu	uu1478357162uuuu	uu-1348780979uuuu
13/1p.	uuuuuuu+8u	uuuuuuu-9u	uuuu+1478357162u	uuuu-1348780979u
14/1p.	u8uuuuuuuu	u-9uuuuuuuu	u1478357162uuuuuuu	u-1348780979uuuuuuu
15/1p.	uuu8uuuuuu	uuu-9uuuuuu	uuu1478357162uuu	uuu-1348780979uuu

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

- (A) `printf("uuuu%-4d",x);` (D) `printf("u%u3d",x);` (G) `printf("%u9d",x);`
 (B) `printf("uuu%06d",x);` (E) `printf("u%0+6d",x);` (H) `printf("%+-9d",x);`
 (C) `printf("uu%u06d",x);` (F) `printf("u%5d",x);` (I) `printf("%-u9d",x);`

inputs:	<u>8</u>	<u>-2</u>	<u>1283167869</u>	<u>-2145160118</u>
16/1p.	uuuu8uuuu	uuu-2uuuu	uuu1283167869uuuu	uu-2145160118uuuu
17/1p.	uuuuu8uuuu	uuuu-2uuuu	u1283167869uuuu	u-2145160118uuuu
18/1p.	u8uuuuuuuu	-2uuuuuuuu	u1283167869	-2145160118
19/1p.	uuuuuuuuu8	uuuuuuuu-2	u1283167869	-2145160118
20/1p.	u+00008uu	u-00002uu	u+1283167869uu	u-2145160118uu

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

- (A) `printf("uuuuu%s",x);` (D) `printf("uuu%1s",x);` (G) `printf("u%suuuuu",x);`
 (B) `printf("uuu%-2s",x);` (E) `printf("uu%-4s",x);` (H) `printf("%6s",x);`
 (C) `printf("uuu%-3s",x);` (F) `printf("u%5s",x);` (I) `printf("%7s",x);`

inputs:	<u>""</u>	<u>"f"</u>	<u>"pz"</u>	<u>"qkpz"</u>	<u>"yhllldl"</u>	<u>"pywvvgqz"</u>
21/1p.	uuuuuuuu	uuuu <u>f</u> uuuu	uuuu <u>pz</u> uuuu	uuuu <u>qkpz</u> uuuu	uuuu <u>yhllldl</u> uuuu	uuuu <u>pywvvgqz</u> uuuu
22/1p.	uuuuuuuu	uuuuuu <u>f</u>	uuuuuu <u>pz</u>	uu <u>qkpz</u>	u <u>yhllldl</u>	u <u>pywvvgqz</u>
23/1p.	uuuuuuuu	uuuuuu <u>f</u>	uuuuuu <u>pz</u>	uuuu <u>qkpz</u>	u <u>yhllldl</u>	u <u>pywvvgqz</u>
24/1p.	uuuuuuuu	uuuuuu <u>f</u>	uuuuuu <u>pz</u>	uu <u>qkpz</u>	u <u>yhllldl</u>	u <u>pywvvgqz</u>
25/1p.	uuuuuuuu	uuuuuu <u>f</u> uu	uuuuuu <u>pz</u> uu	uuuuuu <u>qkpz</u> uu	uuuuuu <u>yhllldl</u> uu	uuuuuu <u>pywvvgqz</u> uu

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

- (A) `printf("uuu%1s",x);` (D) `printf("u%4s",x);` (G) `printf("%2s",x);`
 (B) `printf("uu%su",x);` (E) `printf("%-2s",x);` (H) `printf("%5s",x);`
 (C) `printf("u%-5s",x);` (F) `printf("%-6s",x);` (I) `printf("%6s",x);`

inputs:	<u>""</u>	<u>"z"</u>	<u>"pk"</u>	<u>"jblp"</u>	<u>"bjflvb"</u>	<u>"bpxpylgd"</u>
26/1p.	uuuuuuuu	uuuu <u>z</u> u	uuuu <u>pk</u> u	uu <u>jblp</u> u	uu <u>bjflvb</u> u	uu <u>bpxpylgd</u> u
27/1p.	uuuuuuuu	uuuu <u>z</u> uu	uuuu <u>pk</u> uu	uuuu <u>jblp</u> uu	uuuu <u>bjflvb</u> uu	uuuu <u>bpxpylgd</u> uu
28/1p.	uuuuuuuu	u <u>z</u> uuuu	u <u>pk</u> uuuu	u <u>jblp</u> uuuu	u <u>bjflvb</u> uuuu	u <u>bpxpylgd</u> uuuu
29/1p.	uuuuuuuu	u <u>z</u> uuuu	u <u>pk</u> uuuu	u <u>jblp</u> u	u <u>bjflvb</u>	u <u>bpxpylgd</u>
30/1p.	uuuuuuuu	<u>z</u> uuuuuu	<u>pk</u> uuuuuu	<u>jblp</u> uu	<u>bjflvb</u>	<u>bpxpylgd</u>

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

- (A) `printf("____%-3s",x);` (D) `printf("_%3s_",x);` (G) `printf("%-7s",x);`
 (B) `printf("____%s____",x);` (E) `printf("_%5s",x);` (H) `printf("%6s",x);`
 (C) `printf("_%%-4s",x);` (F) `printf("_%-6s",x);` (I) `printf("%7s",x);`

inputs:	<u>""</u>	<u>"l"</u>	<u>"kh"</u>	<u>"lggx"</u>	<u>"hqpdvc"</u>	<u>"chhjybpz"</u>
31/1p.	_____	ll_____	kkh_____	lllggx_	llhqpdvc_	llchhjybpz_
32/1p.	_____	lllllllll	llllllkh	lllllggx	llhqpdvc	llchhjybpz
33/1p.	_____	llllllll	kkh_____	lllggx_	hqpdvc_	chhjybpz
34/1p.	_____	llllllll	kkh_	lllggx_	llllhqpdvc_	llllchhjybpz_
35/1p.	_____	llllllll	kkh_	lllllggx_	llllhqpdvc_	llllchhjybpz_

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

- (A) `printf("____%s_",x);` (D) `printf("_%s____",x);` (G) `printf("_4s_",x);`
 (B) `printf("____%1s____",x);` (E) `printf("_%5s",x);` (H) `printf("%-6s",x);`
 (C) `printf("____%3s",x);` (F) `printf("_%-4s_",x);` (I) `printf("%7s",x);`

inputs:	<u>""</u>	<u>"k"</u>	<u>"bj"</u>	<u>"kjdy"</u>	<u>"cwslbd"</u>	<u>"jzykwvxc"</u>
36/1p.	_____	kk_____	bbj_____	llkjdy_	llllcwslbd_	lllljzykwvxc_
37/1p.	_____	kk_____	bbj_	llkjdy_	llcwslbd_	lljzykwvxc_
38/1p.	_____	kk_	bbj_	llkjdy_	llcwslbd_	lljzykwvxc_
39/1p.	_____	kk_	bbj_	llkjdy_	llllcwslbd_	lllljzykwvxc_
40/1p.	_____	kk_	bbj_	llkjdy_	llllcwslbd_	lllljzykwvxc_

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

- (A) `printf("____%+10.6f",x);` (D) `printf("_%012f",x);` (G) `printf("%+11.6f",x);`
 (B) `printf("_%+13.4f",x);` (E) `printf("_%013.4f",x);` (H) `printf("%+13.0f",x);`
 (C) `printf("_%012.2f",x);` (F) `printf("%+011.6f",x);` (I) `printf("%0+14.0f",x);`

inputs:	<u>8</u>	<u>6.10</u>	<u>1.2618</u>	<u>-193475.503336</u>
41/1p.	+008.000000_	+006.100000_	+001.261800_	-193475.503336_
42/1p.	+0000000000008	+0000000000006	+0000000000001	-0000000193475
43/1p.	____+8.0000	____+6.1000	____+1.2618	ll-193475.5033
44/1p.	____+8.000000_	____+6.100000_	____+1.261800_	lll-193475.503336_
45/1p.	ll+8.000000_	ll+6.100000_	ll+1.261800_	lll-193475.503336_

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

- (A) `printf("%%+10f",x);` (D) `printf("%10f",x);` (G) `printf("%+14.4f",x);`
 (B) `printf("%%10.0f",x);` (E) `printf("%13.2f",x);` (H) `printf("%13.0f",x);`
 (C) `printf("%011.6f",x);` (F) `printf("%+014.0f",x);` (I) `printf("%14.6f",x);`

inputs:	<u>2</u>	<u>1.31</u>	<u>1.2551</u>	<u>-29091.429418</u>
46/1p.	2.000000	1.310000	1.255100	-29091.429418
47/1p.	+0000000000002	+0000000000001	+0000000000001	-0000000029091
48/1p.	2.000000	1.310000	1.255100	-29091.429418
49/1p.	2.00	1.31	1.26	-29091.43
50/1p.	2.000000	1.310000	1.255100	-29091.429418

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

- (A) `printf("%+012.6f",x);` (D) `printf("%13.4f",x);` (G) `printf("%011.4f",x);`
 (B) `printf("%+11.4f",x);` (E) `printf("%0+14.0f",x);` (H) `printf("%013.4f",x);`
 (C) `printf("%11.0f",x);` (F) `printf("%0+14.2f",x);` (I) `printf("%14.6f",x);`

inputs:	<u>2</u>	<u>-1.10</u>	<u>1.1990</u>	<u>-609345.060210</u>
51/1p.	2.0000	-1.1000	1.1990	-609345.0602
52/1p.	2	-1	1	-609345
53/1p.	00002.0000	-00001.1000	000001.1990	-609345.0602
54/1p.	2.0000	-1.1000	1.1990	-609345.0602
55/1p.	+0000000000002	-0000000000001	+0000000000001	-000000609345

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

- (A) `printf("%%0+10.4f",x);` (D) `printf("%+011.0f",x);` (G) `printf("%10.4f",x);`
 (B) `printf("%%010.4f",x);` (E) `printf("%+10.4f",x);` (H) `printf("%12f",x);`
 (C) `printf("%%011.2f",x);` (F) `printf("%013f",x);` (I) `printf("%+12f",x);`

inputs:	<u>4</u>	<u>-7.19</u>	<u>2.0062</u>	<u>-37645.269289</u>
56/1p.	4.000000	-7.190000	2.006200	-37645.269289
57/1p.	4.000000	-7.190000	2.006200	-37645.269289
58/1p.	+0004.0000	-0007.1900	+0002.0062	-37645.2693
59/1p.	4.0000	-7.1900	2.0062	-37645.2693
60/1p.	+0000000004	-0000000007	+0000000002	-0000037645

Total points 60.

Answer Key (points per line)

1 (1).	A	31 (1).	C
2 (1).	G	32 (1).	E
3 (1).	H	33 (1).	G
4 (1).	E	34 (1).	A
5 (1).	B	35 (1).	B
6 (1).	E	36 (1).	A
7 (1).	C	37 (1).	I
8 (1).	A	38 (1).	G
9 (1).	H	39 (1).	C
10 (1).	F	40 (1).	D
11 (1).	G	41 (1).	F
12 (1).	H	42 (1).	I
13 (1).	B	43 (1).	B
14 (1).	I	44 (1).	A
15 (1).	D	45 (1).	G
16 (1).	D	46 (1).	I
17 (1).	F	47 (1).	F
18 (1).	I	48 (1).	A
19 (1).	G	49 (1).	E
20 (1).	E	50 (1).	D
21 (1).	D	51 (1).	D
22 (1).	F	52 (1).	C
23 (1).	I	53 (1).	G
24 (1).	H	54 (1).	B
25 (1).	A	55 (1).	E
26 (1).	H	56 (1).	F
27 (1).	A	57 (1).	H
28 (1).	G	58 (1).	A
29 (1).	C	59 (1).	G
30 (1).	F	60 (1).	D

Total points 60.