1. A. (66% + 50% + 100%) / 3= **72%**

B.

i	Branch?	State	Predict	Actual
0	X	00	NT	NT
1	Z	00	NT	T
1	X	00	NT	T
1	Y	00	NT	NT
2	Z	01	NT	T
2	X	01	NT	T
2	Y	00	NT	T
3	Z	10	T	T
3	X	10	T	NT
4	Z	11	T	T
4	X	01	NT	T
4	Y	01	NT	NT
5	Z	11	T	T
5	X	10	T	T
5	Y	00	NT	T
6	Z	11	T	T
6	X	11	T	NT
7	Z	11	T	T
7	X	10	T	T
7	Y	01	NT	NT
8	Z	11	T	T
8	X	11	T	T
8	Y	00	NT	T

X: 66%; Y: 50%; Z: 100% = **72%**

C.

i	Branch?	GHR	State	Prediction	Actual
0	X	0000	00	NT	NT
1	Z	0000	00	NT	T
1	X	0001	00	NT	T
1	Y	0011	00	NT	NT
2	Z	0110	00	NT	T
2	X	1100	00	NT	T
2	Y	1001	00	NT	T
3	Z	0011	00	NT	T
3	X	0110	01	NT	NT
4	Z	1100	01	NT	T
4	X	1001	01	NT	T
4	Y	0011	01	NT	NT
5	Z	0110	00	NT	T
5	X	1101	00	NT	T
5	Y	1011	00	NT	T
6	Z	0111	00	NT	T
6	X	1111	00	NT	NT
7	Z	1110	00	NT	T
7	X	1101	01	NT	T
7	Y	1011	01	NT	NT
8	Z	0111	01	NT	T
8	X	1111	01	NT	T

8	Y	1111	10	T	T
9	Z	1111	11	T	T
9	X	1111	11	T	NT
10	Z	1110	01	NT	T
10	X	1101	10	T	T
10	Y	1011	00	NT	NT
11	Z	0110	01	NT	T
11	X	1101	11	T	T
11	Y	1011	00	NT	T
12	Z	0111	10	T	T
12	X	1111	10	T	NT
13	Z	1110	10	T	T
13	X	1101	11	T	T
13	Y	1011	01	NT	NT
14	Z	0110	10	T	T
14	X	1101	11	T	T
14	Y	1011	00	NT	T
15	Z	0111	11	T	T
15	X	1111	01	NT	NT

Accuracy: 88%

D. Speedup of C over B
Assume that instruction count and clock cycle are the same.
Since misprediction has double the CPI then we assume normal CPI is 1 and double that would be 2.
CPI of C: (.88 * 1) + (.12 * 2) = 1.12
CPI of B: (.72 * 1) + (.28 * 2) = 1.28
Speedup = 1.28 / 1.12 = **1.14x**