

B551 – Elements of Artificial Intelligence – PA - 2

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Question 1)

Alarm is false, infer Burglary and JohnCalls being true

Table 1

Alarm is false, infer Burglary being true

Num Samples	Prior Sampling	Rejection	LW
10	0	0	0
50	0	0	0
100	0	0	0.000121
200	0	0	0.000121
500	0	0.0002	0.00002
1000	0.00010	0.0001	0.000060
10000	0.00006	0.00009	0.0000649
Exact	0.00006013		

Table 2

Alarm is false, infer JohnCalls being true

Num Samples	Prior Sampling	Rejection	LW
10	0.02	0.04	0.003
50	0.03604	0.04	0.0520
100	0.05008	0.041	0.0641
200	0.04856	0.0505	0.0555
500	0.05077	0.0477	0.0536
1000	0.04834	0.0513	0.05
10000	0.04952	0.0499	0.05
Exact	0.05		

Question 2)

JohnCalls is true, Earthquake is false, infer Burglary and MaryCalls being true.

Table 1

JohnCalls is true, Earthquake is false, infer Burglary being true

Num Samples	Prior Sampling	Rejection	LW
10	0	0.02	0
50	0	0.026	0
100	0.0342	0.013	0
200	0.0490	0.01600	0.047
500	0.03435	0.0172	0.020
1000	0.0115	0.0178	0.0164
10000	0.0161	0.01684	0.0157
Exact	0.016438		

Table 2

JohnCalls is true, Earthquake is false, infer MaryCalls being true

Num Samples	Prior Sampling	Rejection	LW
10	0.1	0.04	0.78
50	0.025	0.028	0.71
100	0	0.03	0.70
200	0.03	0.027	0.70
500	0.048	0.036	0.69
1000	0.0406	0.0341	0.69
10000	0.03413	0.03247	0.69
Exact	0.0333		

Question 3)

MaryCalls is true and JohnCalls is false, infer Burglary and Earthquake being true

Table 1

MaryCalls is true and JohnCalls is false, infer Burglary being true

Num Samples	Prior Sampling	Rejection	LW
10	0	0	0
50	0	0.006	0
100	0	0.006	0.0138
200	0	0.0075	0
500	0	0.007	0.010
1000	0	0.006	0.0059
10000	0.0065	0.00679	0.0068
Exact	0.00687		

Table 2

MaryCalls is true and JohnCalls is false, infer Earthquake being true

Num Samples	Prior Sampling	Rejection	LW
10	0	0	0
50	0	0.01	0.0168
100	0	0.005	0.0019
200	0	0.004	0.006
500	0	0.0062	0.011
1000	0	0.004	0.0053
10000	0.0092	0.0054	0.00562
Exact	0.005612		