(a) Sequence

Ci	Ai	Pi
1	0	2
2	1	3
3	1	2
4	2	5
5	2	3
6	6	2
7	7	2
8	7	3
9	9	3

(b) Simulation

SCENARIOS A:

T	Arrival	Queue	Cashier	Completed
0	C1	C1	C1	
1	C3 C2	C2	C1	
2	C5 C4	C3	C2	C1
3	C5 C4	C3	C2	C1
4	C5 C4	C3	C2	C1
5	C5	C4	C3	C2 C1
6	C6 C5	C4	C3	C2 C1
7	C8 C7 C6	C5	C4	C3 C2 C1
8	C8 C7 C6	C5	C4	C3 C2 C1
9	C8 C7 C6	C5	C4	C3 C2 C1
10	C8 C7 C6	C5	C4	C3 C2 C1
11	C8 C7 C6	C5	C4	C3 C2 C1
12	C7	C6	C5	C4 C3 C2 C1
13	C7	C6	C5	C4 C3 C2 C1
14	C7	C6	C5	C4 C3 C2 C1
15		C7	C6	12345
16		C7	C6	12345
17			C7	123456
18			C7	123456
19				1234567

EVALUATION A

Ci	Ai	Si	Pi	Di	Wi	Ti
1	0	0	2	2	0	2
2	1	2	3	5	1	4
3	1	5	2	7	4	6
4	2	7	5	12	5	10
5	2	12	3	15	10	13

6	6	15	2	17	9	11
7	7	17	2	19	10	12
8						
9						

Percentage of served customers: 7/9

Percentage of customer who had to wait: 6/9

Total waiting time: 39

Average waiting time: 39/7

Maximal waiting time:10

Total service time: 19

Average service time: 19/7

Ratio between average service and waiting time: 19/39 = 0.48

SCENARIOS B:

T	Arrival	Queue	Cashier1	Cashier2	Completed
0	C1	C1	C1		
1	C3 C2	C2	C1		
2	C5 C4	C3	C2		C1
3	C5 C4	C3	C2		C1
4	C5 C4	C3	C2		C1
5	C5	C4	C3		C2 C1
6	C6 C5	C4	C3		C2 C1
7	C8 C7 C6	C5	C4		C3 C2 C1
8	C8 C7 C6	C5	C4		C3 C2 C1
9	C9C8 C7	C6	C4	C5	C3 C2 C1
10	987	6	4	5	321
11	987	6	4	5	321
12	98	7	6	5	4321
13	9	8	6	7	54321
14		9	8	7	654321
15			8	9	7654321
16			8	9	7654321
17				9	87654321
18					987654321

EVALUATION B

Ci	Ai	Si	Pi	Wi		
1	0	0	2	0		
2	1	2	3	1		
3	1	5	2	4		
4	2	7	5	5		
5	2	9	3	7		
6	6	12	2	6		
7	7	13	2	6		
8	7	14	3	7		

9	9	15	3	6		

Percentage of served customers: 9/9

Percentage of customer who had to wait: 8/9

Total waiting time: 42

Total service time: 25

Ratio between average service and waiting time: 25/42 = 0.59

SCENARIOS C:

T	Arrival	Queue	Cashier1	Cashier2	Completed
0	C1	C1	C1		
1	C3 C2	C3	C1	C2	
2	C5 C4	C4	C3	C2	C1
3	5	4	3	C2	1
4			4	5	321
5			4	5	321
6	C6	6	4	5	321
7	78	7	4	6	5321
8			4	6	
9	9		8	7	654321
10			8	7	
11			8	9	
12				9	987654321
13				9	
14					987654F321

EVALUATION C

Ci	Ai	Si	Pi	Wi		
1	0	0	2	0		
2	1	1	3	0		
3	1	2	2	1		
4	2	4	5	2		
5	2	4	3	2		
6	6	7	2	1		
7	7	9	2	2		
8	7	9	3	2		
9	9	12	3	3		

Percentage of served customers: 9/9

Percentage of customer who had to wait: 7/9

Total waiting time: 13

Total service time: 25

Ratio between average service and waiting time: 25/13 = 1.9

SCENARIOS D:

T	Arrival	Queue1	Cashier1	Queue2	Cashier2	Completed
0	C1	C1	C1			
1	C3 C2	C3	C1	C2	C2	
2	C5 C4	C4	C3	C5	C2	C1
3		4	3		C2	1
4			4		5	321
5			4		5	321
6	C6	6	4		5	321
7	78	C8	4	C7	6	5321
8			4		6	
9	9		8	C9	7	654321
10			8		7	
11			8		9	
12					9	987654321
13					9	
14						987654F321

EVALUATION D

Ci	Ai	Si	Pi	Wi		
1	0	0	2	0		
2	1	1	3	0		
3	1	2	2	1		
4	2	4	5	2		
5	2	4	3	2		
6	6	7	2	1		
7	7	9	2	2		
8	7	9	3	2		
9	9	12	3	3		

Percentage of served customers: 9/9

Percentage of customer who had to wait: 7/9

Total waiting time: 13

Total service time: 25

Ratio between average service and waiting time: 25/13 = 1.9