Question 1

a.

文本

中度可信度描述已自动生成

b.

According to the Example 3.1.3, the data as below:

average interarrival time = 2.00

average wait ............ = 3.83

average delay ........... = 2.33

average service time .... = 1.50

average # in the node ... = 1.91

average # in the queue .. = 1.17

utilization ............. = 0.75

c.

As modify for ssq2, change the Exponential from 2.0 to 1.5. It means that decrease the arrive rate. So, the average interarrival time, average wait time and average delay time have changed. Due to arrive rate decrease, the job intensity has reduced, the job interarrival increase.

Question 2.

a.

文本

中度可信度描述已自动生成

b.

P = average service time/average interarrival time = 1.5/2 = 0.75, average service time is greater than average interarrival time, So this system is unstable system.

c.

For the 3.1.3, the uniform from 1 to 2. And the 3.1.4 the uniform from 0.1 to 0.2. It is directly impacting the service tasks. And redirect impact service performance. And from the result. We can find that the waiting time is become longer. The reason is that delay time is become longer. And we also can find that the job in the queen is increase.

Question 3

1. For x = 0, there is not any jobs go to the feed back loops. The B = 0, There is ideal single server single queen. When the jobs finish process, it leaves the server immediately.

When x = 0, Pr = β

When v > 0, Pr = 1-β

1. It has some relative with acceptance/rejection model. For any of jobs, it may enter the feedback loop, it may leaves the system immediately after finish the process. There are only two conditions, the one is acceptance and another one is rejection. If we assume acceptance is equal to B, the rejection is equal to 1-B. Related to the section 2.3, assume the circuit is equal to B, the left of square is 1-B.

Question 4

a.

Capacities = 1

图片包含 文本

描述已自动生成

Capacities = 2

表格

低可信度描述已自动生成

Capacities = 3

文本

中度可信度描述已自动生成

Capacities = 4

文本

描述已自动生成

Capacities = 5

图片包含 表格

描述已自动生成

Capacities = 6

图片包含 表格

描述已自动生成

b.

Capacities = 1

表格

中度可信度描述已自动生成

Capacities = 2

文本

中度可信度描述已自动生成

Capacities = 3

文本

低可信度描述已自动生成

Capacities = 4

文本

中度可信度描述已自动生成

Capacities = 5

文本

描述已自动生成

Capacities = 6

图片包含 表格

描述已自动生成

1. When the service is processing the job once the job will come. The job will wait at queen. When the previous job in finished and departure from the service. The first job at queue will enter the service. It is also dependent the queue length. When queue length = 1. There only one job can wait in the queue, if there is new job come, it will be drop. Because there is no capacity to store this job. When queue length = 6, the queue can store 6 jobs. When the seventh job coming. It will be jobs. So according to experiment result. When the queue length increase, the probability of drop is decreased.
2. The firstly, within the queue capacity increase, there are more jobs into queue. The probability of drop will decrease.