MONASH University

FIT3158 Business decision modelling - S2 2022

Started on	Friday, 21 October 2022, 7:56 PM
State	Finished
Completed on	Friday, 21 October 2022, 8:11 PM
Time taken	14 mins 56 secs
Grade	**0.40** out of 1.00 (**40**%)

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Question **1**

Correct

Mark 0.10 out of 0.10

Which of the following best describes queuing theory?

a. The study of service times.

b. The study of waiting lines. ✔

c. The evaluation of service time costs.

d. The study of arrival rates.

The correct answer is: The study of waiting lines.

Question **2**

Correct

Mark 0.10 out of 0.10

The number of arrivals to a store follows a Poisson distribution with mean λ = 10/hour. What is the mean inter-arrival time?

a. 10 hours

b. 6 seconds

c. 6 minutes ✔

d. 10 minutes

The correct answer is: 6 minutes

Question **3**

Incorrect

Mark 0.00 out of 0.10

In a queue following a Markov distribution, the exponential probability distribution is used to model which of the following characteristics?

- a. Service rate.
- b. Server utilization.
- c. Arrival rate. ✖
- d. Inter-arrival time.

The correct answer is: Inter-arrival time.

Question 4

Incorrect

Mark 0.00 out of 0.20

A store currently operates its service system with 1 operator. Arrivals follow a Poisson distribution and service times are exponentially distributed.

Given the following information:

- Arrival rate : 6 per hour
- Service time: 7.5 minutes
- Number of servers: 1

What is average amount of time a customer would spend in the store?

- a. 2.25
- b. 0.375 ✖
- c. 0.50
- d. 3.00

The correct answer is: 0.50

Question 5

Correct

Mark 0.10 out of 0.10

Which of the following would be the main reason to employ queuing theory?

- a. To reduce customer wait time in line. ✔
- b. To reduce service times.
- c. To reduce worker idle time in line.
- d. To generate more arrivals to the system.

The correct answer is: To reduce customer wait time in line.

Question 6

Question 6

Correct

Mark 0.10 out of 0.10

If the service rate decreases as the arrival rate remains constant, then, in general

a. service costs increase.

b. customer dissatisfaction decreases.

c. customer waiting time decreases.

d. customer waiting time increases. ✔

The correct answer is: customer waiting time increases.

Question 7

Incorrect

Mark 0.00 out of 0.20

A store currently operates its service system with 1 operator. Arrivals follow a Poisson distribution and service times are exponentially distributed.

Given the following information:

- Arrival rate : 6 per hour
- Service time: 7.5 minutes
- Number of servers: 1

What is the probability that a customer can go directly into service without waiting in line?

a. 0.25

b. 0.00

c. 0.75 ✖

d. 1.00

The correct answer is: 0.25

Question 8

Incorrect

Mark 0.00 out of 0.10

Which of the following notations represent the queue at a doctor's waiting room where the arrival and service processes follow a distribution with known mean and variance?

a. M/G/1

b. G/M/1 ✖

c. G/G/1

d. M/M/1

The correct answer is: G/G/1

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