Week 5 Homework

Due Feb 16 at 11:59pm **Points** 22 **Questions** 22
Available after Feb 7 at 8am **Time Limit** None

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	12,055 minutes	21 out of 22

Score for this quiz: **21** out of 22
Submitted Feb 16 at 11:59pm
This attempt took 12,055 minutes.

Question 1

1 / 1 pts

(Lesson 4.1: Steps in a Simulation Study.) Which steps are regarded as essential for a successful simulation study? (There may be more than one correct answer.)

Correct! ☑ a. Problem formulation

Correct! ☑ b. Model validation

Correct! ☑ c. Model verification

Correct! ☑ d. Experimental design

Correct! ☑ e. Output analysis

☐ f. Attendance at a Justin Bieber concert

(a),(b),(c),(d) and (e)

Question 2

1 / 1 pts

(Lesson 4.1: Steps in a Simulation Study.) Suppose that I have modelled the arriving calls to a call center as a Poisson process. What do I have to carry out in order to determine if that's indeed a reasonable model assumption?

- a. Problem formulation
- b. Model validation

Correct!

- c. Model verification
- d. Attend a Justin Bieber concert

(b).

Question 3

1 / 1 pts

(Lesson 4.2: Some Useful Definitions.) Which of the following times could be regarded as events? (There may be more than one correct answer.)

- a. Customers arrive at Justin's concert venue

Correct!

- b. Justin forgets a lyric

Correct!

Correct!

- [x] c. Justin sings the wrong note

Correct!

- [x] d. Angry customers depart the venue
- [ ] e. A customer is 11 years old

(a)–(d) are all events. [(e) is an attribute, not an event.]

Question 4

0 / 1 pts

(Lesson 4.2: Some Useful Definitions.) TRUE or FALSE? Customer waiting times are activities because these are typically explicitly specified in the simulation.

ou Answered

- (•) True

orrect Answer

- ( ) False

FALSE. Although activities are indeed times of specified length,waiting times typically need to be calculated from the sequence of customer arrival and service times | and so are not explicitly specified beforehand.

Question 5

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? The simulation clock time is a variable.

Correct!

- (●) True
- ( ) False

Question 6

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? The simulation clock time always equals real time.

- ( ) True
- (●) False

Correct!

Question 7

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? In this class, time always moves forward.

- (●) True
- ( ) False

Correct!

Question 8

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? A fixed-increment time-advance mechanism is used primarily in continuous-time models such as those involving differential equations.

Correct!

- (●) True
- ( ) False

Question 9

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? A next-event time-advance mechanism is typically used in queueing models involving customer arrivals, services, and departures.

Correct!

- (●) True
- ( ) False

Question 10

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? The future events list contains all known upcoming events, including arrival times, departure times, and machine breakdown times.

Correct!

- (●) True
- ( ) False

Question 11

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? The FEL can be updated any time an event occurs.

Correct!

- (●) True
- ( ) False

Question 12

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? It is possible for the system state to change between consecutive event times.

- ( ) True
- (●) False

Correct!

Question 13

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? In a simulation using the “next-event” time-advance mechanism, the simulation clock moves to the most-imminent event.

Correct!

- (●) True
- ( ) False

Question 14

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? When a new event occurs, the simulation may update the chronological order of the

FEL's events by inserting new events, deleting events, moving them around, or even doing nothing.

Correct!

- (●) True
- ( ) False

Question 15

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? Almost every discrete-event computer simulation language maintains a FEL somewhere.

Correct!

- (●) True
- ( ) False

Question 16

1 / 1 pts

(Lesson 4.3: Time-Advance Mechanisms.) TRUE or FALSE? In Arena, *you* are responsible for maintaining the language's FEL.

Correct!

- ( ) True
- (●) False

Question 17

1 / 1 pts

(Lesson 4.4: Two Modeling Approaches.) Which is generally the easier simulation modeling approach — Event-Scheduling or Process-Interaction?

a. Event-Scheduling

Correct!

b. Process-Interaction

(b).

Question 18

1 / 1 pts

(Lesson 4.4: Two Modeling Approaches.) Which is the modeling approach adopted by Arena — Event-Scheduling or Process-Interaction?

a. Event-Scheduling

Correct!

b. Process-Interaction

(b).

Question 19

1 / 1 pts

(Lesson 4.4: Two Modeling Approaches.) TRUE or FALSE? A simulation language incorporating the P-I approach considers the events that a generic customer undergoes as it passes through the system, and then

automatically does the bookkeeping to keep track of how all such customers interact with each other.

Correct!

- (●) True
- ( ) False

Question 20

1 / 1 pts

(Lesson 4.5: Simulation Languages.) How many simulation languages are there?

- ( ) a. Just a few.
- ( ) b. 5-10.
- ( ) c. 10-50.

Correct!

- (●) d. >>50.

(d).

Question 21

1 / 1 pts

(Lesson 4.5: Simulation Languages.) Where can you learn about simulation languages? (There may be more than one correct answer.)

Correct!

- [x] a. Right here, right now!

Correct!

- [x] b. Simulation language textbooks

Correct!

- [x] c. The Winter Simulation Conference

Correct!

- [x] d. Vendor short courses
- [ ] e. The Justin Bieber School of Hard Knox. (Nice spelling, Justin.)

(a), (b), (c) and (d).

Question 22

1 / 1 pts

(Lesson 4.5: Simulation Languages.) When selecting a simulation language, what characteristics do you have to take into consideration?

- [ ] a. Cost
- [ ] b. Ease of use
- [ ] c. Modeling “world view” (e.g., event-scheduling or process-interaction)
- [ ] d. Random variate generation capabilities
- [ ] e. Output analysis capabilities

Correct!

- [x] f. All of the above

(f).

Quiz Score: **21** out of 22