### Week 5 Homework

Due Feb 16 at 11:59pm Points 22 Questions 22

Available after Feb 7 at 8am Time Limit None

### **Attempt History**

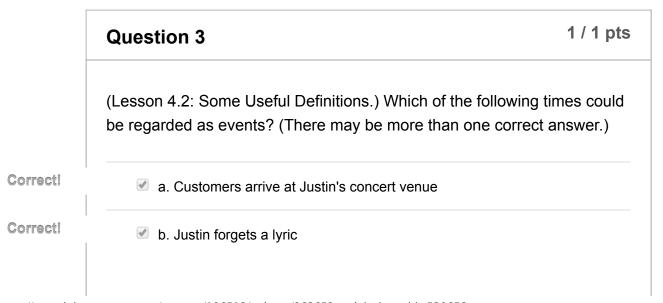
	Attempt	Time	Score
LATEST	Attempt 1	12,055 minutes	21 out of 22

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

### 1 / 1 pts **Question 1** (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)

# (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 c. Model verification d. Attend a Justin Bieber concert



Correct!

c. Justin sings the wrong note

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.

True			
False			

Question 6

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

True

False

Question 7

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

True

False

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.

-	<b>T</b>
-	1 ri 12

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

## Question 13 (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

15/2020	Week 5 Homework: Simulation - ISYE-6644-04	AN/O01	
	FEL's events by inserting new events, deleting events, movaround, or even doing nothing.	ving them	
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.

True

Correct!

False

**Question 17** 

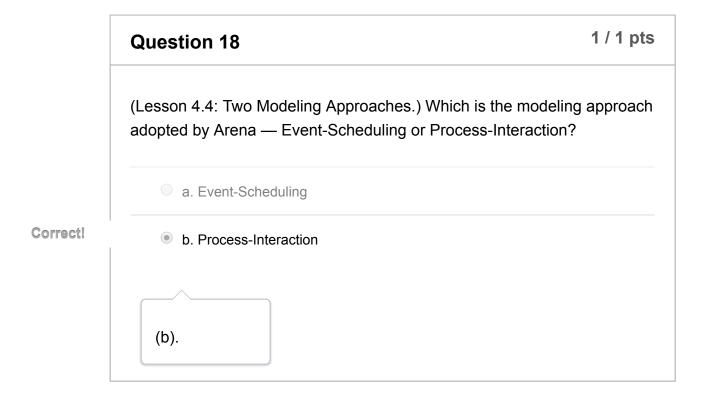
1 / 1 pts

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

a. Event-Scheduling

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

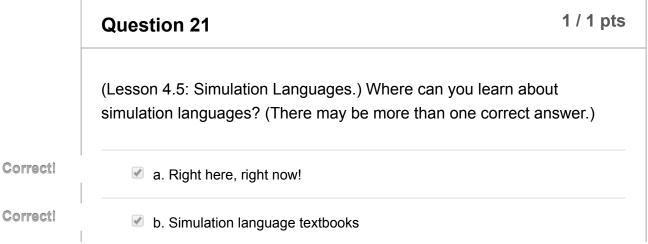
False

Question 20

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

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

d. >>50.



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

1 / 1 pts **Question 22** (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! f. All of the above (f).

Quiz Score: 21 out of 22