Menofia University Faculty of Computer and I Department: (CS & IS)





Subject: (Molding & Simulation) Year: Level 3 Time Allowed: 3Hours

Full Mark: 70

Final Exam. Code: 230CEEE Date: 11/3/2021

رقع الجلوس/

ملحوظه هامة: كل طالب يكتب الكود الخاص بورقة الأسللة في bubble sheet مع بياناته ثم يسلم ورق الأسلة بعد كتابه الاسم ورقم

Answer all the following questions:

			AHATEKI MILA					
tiest	THURS!	Choose the correct An	swer		-			
	Adl	vantage of Simulation	such that	c)Can answer "why-if"	Not all			
	1000	an unswer "what-if"	b)Can answer "when-if"	e)Can answer				
		estions	questions	questions				
-	da	estions						
			that	titing	d)All			
	A	lyantage of Simulation)without disrupting	c) have disrupting				
	(2)	with disrupting)without the					
			sentation (real) s	vstem	d)Not All			
	is an abstract representation (real) system							
	ta Model b)A simulation c)A system							
-			1-19					
	-	low can to develop a sit	nulation model?	e)input variable	d)All			
	1	ow can to describe a	b)performance measures	e)input variants				
	22	system entities						
-								
Ì	-	isadvantages of simula	tion as:	model is unique	d)Not al			
	D	t A is simple	b)model is complex	model is unique				
	3	model is simple						
Ų.		5- the I	nathematical study of waiting	lines or queues.	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
	1		b)Queuing list	e)Quening theory	d)Not all			
	1	Quening line						
			a simples in the simulation m	odel are random				
Ť	Some variables in the simulation model are random b)Dynamic e)Discrete – Event							
	1	Stochastic	b)Dynamic	Christian Committee	1			
H				Fall Comment	Increase the Callin			
	-	is the	number of units in the syste	m and the status of the server,	busy or idie			
	11		b)state of the simulation	e)state of the model	d)All			
		state of the system						
			101 101 1	THE RESERVE				
9	4	mulation is the Not app	ropriate tool at	e)If it is easier to do direct	d)All			
		oll it is easier to	b)II it is easier to periorin	cjii it is casie, is as				
		measure direct	direct experiments.	experiments.				
		experiments.	The state of the s	A second				
			THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO IN COLUMN TO THE PERSON NAMED IN COLUMN TWO IN COL	R.				
	19	Physical Simulation me		The state of the s				
	Link			(a)static-event Simulation	d)All			
		a)Discrete-event	b)Continuous -event	Statte-event Simulation				
		Simulation models	Simulation models	models	of the system			
	11	The usually tal	kes the form of a set of assum	ptions concerning the operation	DI the system			
		ai Model	Lies Anim of a sec	e)System	(I)AII			
			b)Simulation					
	17			en the relationships between va	riables of the			
	12	re the relationships between va						
		system are expressed in	dum or	to model	d)Not all			
		aj Analytical model	b)mathematical model	e)dynamic model	Marian Maria			
	100	0 10 000	D)mathematical inde					

		Assumuti	ons about how the system work	S				
	Often require	s making simplifying assump-	ons about how the system work c)System	d)All				
	Model	b)Simulation						
		- Corous						
	are too	expensive, too dangerous	elsimulation	d)All				
	atmodel	b)experiments						
		Lange ove	time is called					
4	simulation models represe	ent systems as they change ove	e)Static	d)all				
	a)Deterministic	b)Dynamic						
				d) all				
6	simulation is the Not appropriate tool at tool c) If system behavior is too							
7	alf system behavior is	b) If system behavior is too	composite					
	ing complex	cusy	L. Carrier					
	_337.33(18.44)	and the second	d-world process or system over	time.				
3	is the im	tation of the operation of a re-	c)A system	a)A Model				
	a) A Model	MA simulation	Cic ayatem					
18	simulation is the Not app	ropriate tool at	c)If resources or time are	d)Not All				
E/CX	Alti resources or time	Difficonness	valid					
	www.mot.available	available						
	The state of the s	1/11/11/11/11	ets the dynamic behavior of the e)Object Model	system?				
19	Which of the following t	nodel in system modelling depi	e)Object Model	d)Not al				
833	a)Behavioral Model	b)Context Model	C)Onject status					
				The Control of the Co				
1	annulation is the Not ap	propriate tool at	Tyreat washing our be	d)Not all				
70	simulation is the Not ap	b) if the problem can be	e) if the problem can be	d)Not all				
70	rittibe problem can be	b) if the problem can be solved mathematic	e) if the problem can be solved manual	d)Not all				
170	will the problem can be solved analytically	solved mathematic	solved manual					
	the problem can be solved analytically	solved mathematic	solved manual					
	the problem can be solved analytically	solved mathematic	solved manual ulation, represents a, system at	a particula				
	will the problem can be solved analytically	solved mathematic	solved manual					
	cile the problem can be solved analytically simulation model, som point in time js called - aiDeterministic	solved mathematic etimes called a Monte Carlo sim	solved manual ulation, represents a, system at	a particula				
	all the problem can be solved analytically simulation model, som point in time js called albeterministic	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at	solved manual ulation, represents a, system at §)Static	a particula				
	cile the problem can be solved analytically simulation model, som point in time js called - aiDeterministic	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at	ulation, represents a, system at (a)Static (c)If cost exceed savings and	a particula				
	all the problem can be solved analytically simulation model, som point in time js called albeterministic	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at	solved manual ulation, represents a, system at §)Static	a particula				
1 12 1 141	till the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not appeal of the cost exceed savings	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at bilf cost exceed not savings.	ulation, represents a, system at (a)Static (c)If cost exceed savings and	a particula				
	till the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not applif cost exceed savings Advantage of Simulation	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at ———————————————————————————————————	solved manual ulation, represents a, system at (s)Static (c)If cost exceed savings and valid.	a particula d)all d)All				
1 12 1 141	plf the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not applif cost exceed savings Advantage of Simulatio Dunderstand how the	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at bilf cost exceed not savings.	solved manual ulation, represents a, system at (Static c)If cost exceed savings and valid. c)understand how the	a particula				
1 12 1 141	till the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not applif cost exceed savings Advantage of Simulation	solved mathematic etimes called a Monte Carlo sim biDynamic propriate tool at ———————————————————————————————————	solved manual ulation, represents a, system at (s)Static (c)If cost exceed savings and valid.	a particula d)all d)All				
	till the problem can be solved analytically simulation model, some point in time je called aitheterministic simulation is the Not at full cost exceed savings. Advantage of Simulation bunderstand how the system operates.	solved mathematic etimes called a Monte Carlo sim b)Dynamic propriate tool at b)If cost exceed not savings. an such that b) understand how the system idle.	solved manual ulation, represents a, system at ()Static c)If cost exceed savings and valid. c)understand how the system operates and idle.	a particula d)all d)All				
	till the problem can be solved analytically simulation model, some point in time je called aitheterministic simulation is the Not at full cost exceed savings. Advantage of Simulation bunderstand how the system operates.	solved mathematic etimes called a Monte Carlo sim b)Dynamic propriate tool at b)If cost exceed not savings. m such that b) understand how the system idle.	solved manual ulation, represents a, system at ()Static c)If cost exceed savings and valid. c)understand how the system operates and idle. m.	a particula d)all d)All d)All				
21	till the problem can be solved analytically simulation model, some point in time je called aitheterministic simulation is the Not at full cost exceed savings. Advantage of Simulation bunderstand how the system operates.	solved mathematic etimes called a Monte Carlo sim b)Dynamic propriate tool at b)If cost exceed not savings. an such that b) understand how the system idle.	solved manual ulation, represents a, system at ()Static c)If cost exceed savings and valid. c)understand how the system operates and idle.	a particula d)all d)All				
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21	till the problem can be solved analytically simulation model, some point in time je called aitheterministic simulation is the Not applif cost exceed savings Advantage of Simulation bunderstand how the system operates. is the atSimulation	b) If the problem can be solved mathematic solved mathematic solved mathematic b) IDynamic b) IDynamic b) IDynamic b) IDynamic b) IDynamic b) IT cost exceed not savings. b) If cost exceed not savings. b) Inderstand how the system idle. quantitative measure of a system idle.	c)Modeling	a particula d)all d)All d)All				
	all the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not applif cost exceed savings. Advantage of Simulation of Simulation operates. —is the arsimulation of Simulation operates.	billynamic billynamic billynamic billynamic bill cost exceed not savings. bill cost exceed not savings. bill miderstand how the system idle. quantitative measure of a system idle. billerformance come models are useful which selectings.	c)Modeling	a particula d)all d)All d)All				
23 24 25	all the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not applif cost exceed savings. Advantage of Simulation of Simulation operates. —is the arsimulation of Simulation operates.	billynamic billynamic billynamic billynamic bill cost exceed not savings. bill cost exceed not savings. bill miderstand how the system idle. quantitative measure of a system idle. billerformance come models are useful which selectings.	c)If cost exceed savings and valid. c)understand how the system operates and idle. c)Modeling ay this statement-	a particula d)all d)All d)All d)All				
21 24	all the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not appell cost exceed savings. Advantage of Simulation of the system operates. is the arsamulation. All models are wrong, afficiency, Box. 1977. Any system can have—	billynamic billynamic billynamic billynamic bill cost exceed not savings. bill cost exceed not savings. bill miderstand how the system idle. quantitative measure of a system idle. billerformance come models are useful which selectings.	c)If cost exceed savings and valid. c)understand how the system operates and idle. c)Modeling ay this statement-	a particula d)all d)All d)All d)All				
23 24 25	till the problem can be solved analytically simulation model, some point in time is called a theoreministic simulation is the Not at till cost exceed savings off cost exceed savings. Advantage of Simulation bunderstand how the existent operates. is the alSamulation. All models are wrong, a George Box, 1977 Auty system can have—a multiple models.	solved mathematic solved mathematic etimes called a Monte Carlo sim b)Dynamic sopropriate tool at b)If cost exceed not savings. b) understand how the system idle. quantitative measure of a system idle. b)Performance some models are useful which s b)George Box, 1978 b)one models	c)If cost exceed savings and valid. c)If cost exceed savings and valid. c)understand how the system operates and idle. m. c)Modeling ay this statement @George Box , 1979 c)two models	a particula d)all d)All d)All				
21 24 25 26	till the problem can be solved analytically simulation model, some point in time is called a theoreministic simulation is the Not at till cost exceed savings off cost exceed savings. Advantage of Simulation bunderstand how the existent operates. is the alSamulation. All models are wrong, a George Box, 1977 Auty system can have—a multiple models.	solved mathematic solved mathematic etimes called a Monte Carlo sim b)Dynamic spropriate tool at b)If cost exceed not savings. b) understand how the system idle. quantitative measure of a system idle. b)Performance some models are useful which s b)George Box, 1978 b)one models	c)If cost exceed savings and valid. c)If cost exceed savings and valid. c)understand how the system operates and idle. m. c)Modeling ay this statement @George Box , 1979 c)two models	a particula d)all d)All d)All d)All				
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21 24 25 26	till the problem can be solved analytically simulation model, some point in time is called aideterministic simulation is the Not appoint on the solve exceed savings of cost exceed savings. Advantage of Simulation bunderstand how the system operates. All moders and how the system operates. All models are wrong, a Sicorge Box, 1927 Any system can have—almultiple models ———————————————————————————————————	solved mathematic solved mathematic etimes called a Monte Carlo sim b)Dynamic propriate tool at b)If cost exceed not savings. b) understand how the system idle. quantitative measure of a system idle. propriate tool at b) understand how the system idle. quantitative measure of a system idle. b) George Box, 1978 b) George Box, 1978 b) one models are useful which show the system idle.	c)Modeling ay this statement c)two models c)two models	a particula d)all d)All d)All d)All d)All				
21 24 25 26	till the problem can be solved analytically simulation model, some point in time is called aideterministic simulation is the Not appoint on the solve exceed savings of cost exceed savings. Advantage of Simulation bunderstand how the system operates. All moders and how the system operates. All models are wrong, a Sicorge Box, 1927 Any system can have—almultiple models ———————————————————————————————————	b) If the problem can be solved mathematic solved mathematic solved mathematic b) Dynamic b) Understand how the system idle. b) Understand how the system idle. c) Dynamic b) Dynamic	c)If cost exceed savings and valid. c)understand how the system operates and idle. m. c)Modeling ay this statement ©George Box , 1979 c)two models c)dynamic model	a particula d)all d)All d)All d)All d)All Not all				
22 24 25 26 27	old the problem can be solved analytically simulation model, some point in time is called aitheterministic simulation is the Not as fulf cost exceed savings. Advantage of Simulation bunderstand how the system operates. is the aiSamulation. All models are wrong, aiGeorge Box. 1977 Any system can have an insulating models.	solved mathematic solved mathematic etimes called a Monte Carlo sim b)Dynamic propriate tool at b)If cost exceed not savings. b) understand how the system idle. quantitative measure of a system idle. propriate tool at b) understand how the system idle. quantitative measure of a system idle. b) George Box, 1978 b) George Box, 1978 b) one models are useful which show the system idle.	c)Hodeling ay this statement- (c)How models c)How models c)How models c)How models	a particula d)all d)All d)All d)All d)All Not all				

				d)All
			pattribute	- Since
		Control of the Contro		
7	a)event.	b) entity	e) Uniform and independent	d) All
		- washers are:	Uniform and independent	100
5	The key properties of r	andom numbers are: b) Different and dependent	e) Ultimo	
	a) Uniform and	b) Difference		
-	dependent			All
	A simulation model wit	th three features	c) Dicrete -Event	3 9 740
16	a) Stochastic	b) Dynamic	e) Dicres	
-	a) Stochastic	1 47 47	at define the	d) All
17	a collection of entities	that interact over time this statem	a modeling	0) 241
				-
		ction of associated entities order	t in some logical fashion	d)Not All
48	colle	ction of associated entities, order	c)model	
	(a) List	b)entity	forwarence, also s	alled the
		h)entity it notices for future events, ordere	d by time of occurrent	T
49	is a list of even	I notices for future comme	c)events	d)Not All
	future event list (FEL	b) Events Queue	c)events	A Amerika
	(a) Event list		remation necessary to adequa	nely describe
50	a collection o	b) Events Queue of variables that contain all the inf	Bi lii atti	Lastor All
	the system at any time		()A system state	07.101
	n)A Model	b)A simulation		
		in system state occur at discrete	time instances	d)Not all
51	changes	b)Dynamic	ODiscrete -Event	
	a)Stochastic	Djižyttatitic		
	Mathematical Method	ts is suitable for	The management	d)All
52	Stathematical viction	b)complex systems	e)composite systems	
53	To hold the events we	use	c)Model event	d)All
)simulation clock	b)Simulation event	C)MOGET COLOR	
54	Activity in simulation	b)unconditional wait	e)Activity wait	d)All
	a)conditional wait			
): a duration of time ur	specified indefinite length	
	75.1	b)unconditional wait	c)Activity wait	d)All
55	4111 4 111		1 Africano	256
	4111 4 111	a variable representing simulated	time	
55	Quantitional wait	a variable representing simulated	c)time	Td)All
	Oconditional wait	a variable representing simulated simulation clock	c)time	†d)All
56	Oconditional wait	a variable representing simulated / simulation clock usually called primary event	Citine	
	Oconditional wait	a variable representing simulated simulation clock	c)time	d)Not a
56	Quantitional wait a)simulation hours a)Analytical model	a variable representing simulated / simulation clock usually called primary event ()Complete activity	e)dynamic model	
56	a)simulation hours a)Analytical model Ais	a variable representing simulated / simulation clock usually called primary event (Complete activity the list that an entity enters it's re-	e)dynamic model	d)Not a
56	Oconditional wait a)simulation hours a)Analytical model	a variable representing simulated / simulation clock usually called primary event ()Complete activity	e)dynamic model	
56	a)simulation hours a)Analytical model A	a variable representing simulater / simulation clock usually called primary event /)Complete activity the list that an entity enters i(a r b)Row	e)dynamic model	d)Not a
56	a)simulation hours a)Analytical model Ais a)queue Basic elements of Qu	a variable representing simulated I	e3dynamic model esources is occupies c)line	d)Not a
56	a)simulation hours a)Analytical model A	a variable representing simulated I	e)dynamic model	d)Not a
56	a)simulation hours a)simulation hours a)Analytical model Ais c)queue Basic elements of Qu a)Entries or custome	a variable representing simulated / simulation clock usually called primary event (*)Complete activity the list that an entity enters it a r b)Row usually called primary event complete activity b)Row complete activity b)Queue	esources is occupies c)line c)Service channels	d)Not a
56	a)simulation hours a)Analytical model Ais a)Analytical model Ais a)Analytical model Ais a)Analytical model In theis	a variable representing simulater [2] simulation clock usually called primary event [2] Complete activity the list that an entity enters it are [b) Row tening System are rs [b] Queue	e)dynamic model esources is occupies c)line c)Service channels population is infinite	d)Not a
56 57 58 59	a)simulation hours a)simulation hours a)Analytical model Ais c)queue Basic elements of Qu a)Entries or custome	a variable representing simulated / simulation clock usually called primary event (*)Complete activity the list that an entity enters it a r b)Row usually called primary event complete activity b)Row complete activity b)Queue	e)dynamic model esources is occupies c)line c)Service channels	d)Not a

		bed by number of elements	which consists the system					
1	the state of the s	The state of the s	c) modeling system	-				
-	Quening system	b) simulation system	c) modeling system	d) sii				
12	For any simple, arrival rate must be less than the total service rate							
			c) some-channel queue	Not at				
	Tax.							
63			m and the status of the server,					
	y) state of the system	b) state of simulation	c) state of modeling	dyNor				
64	An is a set of	f circumstance that cause a	n change in the state of the syst	em .				
	a) attribute	A) event	c) object	d)All				
65	A A	ompletion of service on a uni	it.	-				
	departure event	b) arrive event	c) wait event	dinot a				
		1						
66	In flowchart I means							
		Departure eve						
		yes Queue empty?	no Remove next unit					
	a) start server idle time	b) finish server idle time	Obegin server idle time	diNot:				
67	If the server is busy, the		c) waiting	d)All				
	(a) Queue.	b) service	L) waning					
8	If the server is	and the queue is empty,	the unit begins service.	-				
		b) busy	c)empty	d)All				
9	Is in part possible for the se	ever to be idle and the queue	e to be					
	It is not possible for the se	V)nonempty	c)busy	d)All				
				MARI				
	Jucuing theory is the	study of wait	ing lines or queues					
- 4)) analytical	mathematical	d)All				
	erver is impossible is busy			7-111				
	nonempty 1)empty	c)busy	d)All				
	for eval	icating the effect of change		-				
15	exign tool A	nalysis tool	O I I					
	Cargo com	maryais tool	dynamic model	Not al				
		server and queue for arriv	ral and done to					
	Single server b	multi server	e) namellal					
			c) parallel server	d)All				
	1/inter ar	rival time						
1) arrival rate	2)					
		The second second	c) arrival begin	d)All				
				107: 414				
TIE	rom this table find average	distance of the same		1 1				

1		Custome	Inter- arrival	arrival	Service time	Time service begin	Time service end	Delay (TiQ)		Com
1		1	-	0	2	0	2	0		time
1		2	2	2	1	2	3	0	2	2
h		3	4	6	3	6	0		1	3
1		4	1	7	2	9		0	3	9
1		5	2	9	1	11	11	2	4	11
		6	6	15			12	2	3	12
		total	15		13	15	19	0	4	10
		a)2,3		b)2.6	13			4	17	-
					4		c)2.4			4/2 5
17	6	Using table in	Question	75 to find :	iverage ser	vice time				(1)2.5
-		13)2.17		b) 2.16			c) 2.15	_		
7	77	Using table in	Ouestion	75 to 5 . 1	AND THE REAL PROPERTY AND THE PERSON NAMED IN COLUMN TO THE PERSON					d) 2.18
1		a)0.66	Sucotion	(a) 0.67	verage dela	iy				
1	78	Then you are				_	c)0.68			d)0.69
	7.03	Using table in a) 2.82	Question	75 to find a	verage wait		D. C. L.			
				174.83			c)2.84	_		
No.	79	Using table in a) 17/6	n Question	75 to find T	4.	1	2)2.0.4			d)2.86
4		a) 17/6		b) 13/6	ime spend	in the sys	tem=			
1				_	11		c) 15/6			()not a
1	80	In	ther	e is more at	41		-			one
1	7	D Savaret (D	15.0	- is more th	an one serv	er and ea	ch server pr	nvidee at		
L		Servers - Sing	rallel)	b) Several	(Parallel) S	ervers	ch server pro	- ides in	esame	type of
81			e Queue	- Several	Queue		c) Several (P: multiply Qu	A	ervers	d)Not al
0.1	-	Arrivals can be	e measured	as the			miphy Qu	ieue		
		a) arrival time	finish	b) arrival	time				_	3.
82		The batch size	man Lander) arrival rate			4) 11
		The batch size (a) deterministic	may be eitl	b) Stochast						d) all
		-				()	deterministi			
83		T.				st	ochastic	cor		d)All
		() Balking	ne custome	r may decid	le not to ent	er the au				
14	-			отмексут	g:	(0)	Dron Ari	ival	_	
	stochastic The customer may decide not to enter the queue upon Arrival b) Jockeying: c) Drops: The customer may decide to leave the queue after Waiting a cer b) Balking b) Balking c) Jockeying: a) Batch service								10	10.00
		y ischeging		b) Balking	10 161	ive the q	leue after W	111	10	DAII
15			A server o			(c).	bekeying:	atting a c	ertain t	imain
(2)		a) Batch service	e i) Batch are	up everal custo	mers sim	ultunes		IN	ot all
16		f 12 customers	enter a stor	e per hour.	the time be	(Wasse	Batch process h arrivat			
	-11	a) Batch service f 12 customers (i)6 minute)5 minute		een eac	h arrival is-	ing	(1)	All
		-mea				18/	minute	-	-	-
7		The Real Property lies and the latest terms.	see of female for the		Leaves Law contains				TA COL	

them. a) Drops: c) Bulking) Jockeying: Customers may be dropped from the queue for reasons outside of their control 88 A) Drops: c) Bulking b) Jockeying: --- A customer of higher priority immediately displaces any customers of lower priority 89 already in service a) no preemptive c) Non-preemptive) Preemptive -----Customers with higher priority wait current service completes, before being served a) no preemptive b) Preemptive Non-preemptive dyna is a stochastic model used to model randomly changing systems
a) Markov simulation | I)A Markov model | e) Markov system 91 92 X(t) is a random variable that varies with time elifficet self c) Stochastic Process b) variable Process c) random Process From this figure Piren 3 Pas-trio • Tomorrow it's 0.7 Sunny and 0.3 Rainy,

What is the probability of Sunny and Rainy after Tomorrow?

[0][0.67 0.33] B[0.76 0.32] 41[0.67 32] The probability that it will be (FUTURE) SUNNY in DAY 6 given that it is RAINN'S is independent from PAST EVENTS b) DAY 8 1999.48 5 Which element of Markov chain can be delete $\Pr\left\{X\left(t_{k+1}\right) \mid X_{k+1} \mid X\left(t_{k}\right) = X_{k+1} \mid X\left(t_{k}\right) = X_{k}\right\}$ b) X(ti) ** Xi 5) X(14) TAL are a widely used class of computational algorithms for me behavior of various physical and mathematical systems, and for other comparations of the systems and for other comparations orthods

(i) a and to is a set of assumptions that define the system a) Conceptual model b) Conceptual system c) Conceptual A number of service centers and interconnecting quaa) Service time b) Service mechanism (c) Service system simulation model expressors a system at a point in time.

to 8

