# M.Sc. (C.S.) Sem M) QP Code; 94208

#### $(2\frac{1}{2}$ Hours)

#### [Total Marks: 60]

Simulation & modeling

N. B.: (1) All questions are compulsory.

c.

system.

- (2) Make suitable assumptions wherever necessary and state the assumptions made.
- (3) Answers to the same question must be written together.
- (4) Numbers to the right indicate marks.
- (5) Draw neat labelled diagrams wherever necessary.

(6) Use of Non-programmable calculators is allowed.

- I Choose the correct alternative and rewrite the entire sentence with the correct alternative. (28)
- 1. Select the valid reasons for using simulation
  - Simulation model cannot prescribe a. what should be done about a problem.
    - **b.** Simulation models can be used to study alternative solutions to a problem
    - Simulation models the behavior of a d. The equations describing the operating characteristics of the system are known

2. Simulation models can be used to obtain operating characteristic estimates in less time than with the real system using a feature of simulation called:

- Microseconds a. **b.** Warp speed c.
  - Time compression **d.** None of the above

3. What is/are the necessities of Simulation Process in VHDL?

- Requirement to test designs before a. b. Reduction of development time implementation & usage Decrease the time to market c. d. All of the above
- Which functions are performed by static timing analysis in simulation? 4.
  - Computation of delay for each timing a. b. Logic analysis in a static manner path
    - Both a and b c. d. None of the above
- An event is nothing but \_\_\_\_\_\_ target signal, which is to be updated. 5. Fixed a. b. Change on

Both a and b c. d. None of the above

- Which among the following is not a characteristic of 'Event-driven Simulator'? 6. Identification of timing violations a. **b.** Storage of state values & time information
  - c. Time delay calculation

d. No event scheduling

	a. Event-driven Simulator	b.	Cycle-based Simulator		
	<b>c.</b> Both a and b	d	None of the above		
	c. Both a and b	d.	INOTE OF the above		
8.	In the simulation process, which step specifies the conversion of VHDL intermediate code so that it can be used by the simulator?				
	a. Compilation	b.	Execution		
	c. Initialization	<b>d.</b>	Elaboration		
9.	Which among the following is not a charac	teristic	of 'Event-driven Simulator'?		
	a. Identification of timing violations	<b>b.</b>	Storage of state values & time		
	<b>c.</b> Time delay calculation	8840	information		
	c. Time delay calculation	<b>u</b> .	No event scheduling		
10.	Which type of simulator/s neglect/s the intra-cycle state transitions by checking the stat of target signals periodically irrespective of any events?				
	a. Event-driven Simulator	b.	Cycle-based Simulator		
	<b>c.</b> Both a and b	<b>d.</b>	None of the above		
	말 수 없는 것 같은 것 같 것 같 것 같	S. A.S.			
11.	Which of the following can't be a compone	ent for a			
	a. Seasonality	<b>b.</b>			
	c. Cyclical	d.	None of the above		
12.	Adjacent observations in time series data (excluding white noise) are independent and identically distributed (IID).				
	a. TRUE	Non She	FALSE		
	<b>c.</b> Depend on simulation	d.	Partially True		
12	Concentual model defined as	n naraa	ation on behalf of the modeler that		
13.	Conceptual model defined as a perception, on behalf of the modeler, that t conceptual model will lead to a computer model that is sufficiently accurate for the purpose at hand.				
	a. Usability	b.	Validity		
	c. Feasibility	d.	Credibility		
14.	are abstract systems that are a result of human				
	design, e.g. mathematics and literature.				
	a. Designed physical system	b.	Designed abstract systems		
	c. Human activity systems	d.	Natural systems		
15.	.The is the model bounda	ary or th	he breadth of the real		
	system that is to be included in the model.	1211			
	a. Level of detail	b.	Scope of model		

c. Output

d. Assumptions

16.	data are available either beca they have been collected previously	ause they	are known or because
	a. Category A	b.	Category B
	c. Category C	d.	All of these
			관망 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
17.	data are not available and c	annot be	collected.
	a. Category A	<b>b</b> .	Category B
	c. Category C	<b>.</b> d.	All of these
18.	The can be tested both gra	phically	and using statistical
10.	tests.	apmeany	and using statistical
	a. Statistical distributions	Š. (b.)	Empirical distributions
	c. Goodness-of-fit	d.	None of these
19.	For a simulation there is an	ataral and	I noint that dataminan
19.	For a simulation there is a native length of a run.		i point that determines
	a. Terminating	S. h.	Non terminating
	c. Empirical	<b>d.</b>	Ending
	LE L		
20.	experimentation involves wat	ching the	simulation run and
	making changes to the model to see the e	ffect.	
	a. Batch	<b>b.</b>	Transient
~	c. Both of the above	d.	Interactive
21.	In analysis the consequence	es of chai	nges in model inputs
21.	are assessed.		iges in model inputs
	a. Data collection	<b>b.</b>	Sensitivity
	c. Process	. d.	Information
			\$ \$
22.	is the process of ensuring	g that the	model is sufficiently
6	accurate for the purpose at hand.	2.9.9 ···	
	a. Validation	and the second sec	Analysis
588	c. Verification	<b>d.</b>	Experiment
23.	determining that the contextua	al data an	d the data required for
	model realization and validation are suffi		-
	at hand.	erency at	in the purpose
t SA	것입법, 영영, 영영, 영영, 영영, 영영, 영영, 영영, 영영, 영영, 영		
1 S.S.S.	a. White-Box Validation	b.	Black-Box Validation
382	c. Data Validation	d.	Experimentation Validation
			T
24.	The modeler considers the system being i		as a process, i.e. a sequence of
	operations being performed across entitie		
N.S.S.	a. System dynamics	b.	Discrete event modelling
5283	c. Agent based modelling	d.	None of these
Section of the			

ł

S. r

- 25. \_\_\_\_\_ time assumes things can only happen during discrete time steps (they are "snapped to the time grid"), and nothing happens in between.
  - a. Synchronous

c. Asynchronous

b. Discreted. None of these

8

8

8

8

- 26. \_\_\_\_\_\_ space is a rectangular grid of cells.
  - a. 2D
    b. 3D
    c. Continuous
    d. Discrete
- 27. A light of any type has three color components: Ambient, Diffuse, and
  - a. Spot
    b. Specular
    c. Ambient
    d. None of these
- 28. A \_\_\_\_\_ (an extended version of state diagram) is a visual construct that enables you to define event- and time-driven behavior of various objects.
  - a. Graphb. Statechartc. Chartd. Diagram
- II Attempt <u>any two</u> of the following:
  - a) Why is simulation needed? Explain the example of interconnected system subject to variability?
  - b) Explain different categories of data availability and collectability?
  - c) Explain in the factors on which we decide the number of replications and runlength of simulation model?
  - d) Explain simulation as a perspective of management?
- III Attempt <u>any two</u> of the following:
  - a) Explain the difficulties of validation and verification in simulation ?
  - b) Explain in detail the three methods of white box validation and verification?
  - c) What is 2k factorial design? Discuss its limitation?
  - d) What is simulation project success and how it is achieved?

# IV Attempt <u>any two</u> of the following:

- a) What are the different types of Triggers used in state charts explain the function of each?
- b) What is state chart? Draw and explain the state chart of laptop running on battery.
- c) Explain virtual time execution mode with respect to anylogic? Explain discrete event approximation of real world continuous process?

# Attempt any two of the following:

V

- a) Explain three phase simulation approach.
- b) Explain welch model for plotting moving average.
- c) Write a short note on grouping shapes.
- d) Explain the use of camera in 3D multiple window.

cloud computin

# M.Sc. (8 Sem M) &P lode: 94682

## (2<sup>1</sup>/<sub>2</sub> Hours)

[Total Marks: 60]

- N. B.: (1) <u>All</u> questions are <u>compulsory</u>.
  - (2) Make suitable assumptions wherever necessary and state the assumptions made.
  - (3) Answers to the <u>same question</u> must be <u>written together</u>.
  - (4) Numbers to the <u>right</u> indicate <u>marks</u>.
  - (5) Draw <u>neat labelled diagrams</u> wherever <u>necessary</u>.
  - (6) Use of **Non-programmable** calculators is **allowed**.
  - I Choose the correct alternative and rewrite the entire sentence with the correct alternative. (28)

### 1. NIST Stands for

- a. National Institute of Standards and Technology
- c. National Institute of Standards and Thinking.
- **b.** National Institute of Subject and Thinking.
- **d.** National Institute of Subject and Technology.

2. A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider. This service is recognized by

- a. On-demand self-service
- b. Broad network access

c. Resource pooling

c.

5.

- d. Rapid elasticity
- 3. Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms. This service is recognized by \_\_\_\_\_\_
  - a. On-demand self-service b. Broad network access

Resource pooling d. Rapid elasticity

4. The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. This service is recognized by

a. On-demand self-serviceb. Broad network accessc. Resource poolingd. Rapid elasticity

In \_\_\_\_\_\_ Resource usage are monitored, controlled, audited, and reported, to provide transparency for both the provider and consumer of the utilized service

a. Measured service

**b.** Broad network access

c. Resource pooling

**d.** Rapid elasticity

			i a a service		
6.		~	is Software as a Service.	b.	PaaS
	a.	SaaS		d.	DaaS
	c.	IaaS			
			is Platform as a Service.		
7.		a a		b.	PaaS
	a.	SaaS		d.	DaaS
	c.	IaaS		224	지수는 것을 가지 않는 것을 가지 않는다.
0			is Infrastructure as a Service	<b>.</b> Set a	눈감망 감정 것이 못 수 없는 것이다.
8.		SaaS	15 IIII1050 071	b.	PaaS
	a.	IaaS		d.	DaaS
	c.				here single
9.	In		cloud infrastructure is p	rovision	ed for exclusive use by a single business units). It may be owned,
).	org	anizatio	on comprising multiple consum	ers (e.g.,	, business units). It may be owned, d party, or some combination of them,
	ma	inaged :	and operated by the organizatio	n, a third	d party, or some combination of them,
	and	d it may	exist on or off premises.		
	a.	Priva	te cloud.	b.	
	c.	Publi	c cloud	<b>d.</b>	Hybrid cloud.
				in monio	ioned for exclusive use by a specific
10.	In		cloud infrastructure	is provis	have shared concerns.
	co	mmunit	y of consumers from organizat	ions mai	Community cloud.
	a.		te cloud.	Д	Hybrid cloud.
	c.	Publ	ic cloud	<b>a.</b>	, Trybrid cloud.
				provisio	ned for open use by the general public.
11.	. In	۱		piovisio h	. Community cloud.
	a.		ate cloud.	d	
	c.		ic cloud	S. G. Mark	
10	T	1 montr	that can conduct independent	assessme	ent of cloud services, information system
12	. 1	ne party	s, performance and security of	cloud in	
		~1	ld Consumer.	b	. Cloud Auditor.
	a	<b>C1</b>	ud Provider.	d	I. Cloud Broker.
	c				
13	х I-	n SaaS	use of application/service for b	usiness p	process operations is considered as
		n outo,			
	2	. Cor	nsumer Activity		b. Provider Activity.
			ker Activity		1 Common Activity
	C	Bro	KEI AUTITY	L	d. Carrier Activity.
	C	e. Bro	Kel Activity	Ĺ	a. Camer Activity.
	C	e. Bro			
1			is a generic high-level co	onceptua	al model that is a powerful tool for
1.			is a generic high-level co	onceptua and ope	I model that is a powerful tool for erations of cloud computing
1	4	discussi a. Ha	is a generic high-level consistent of the requirements, structures, doop.	onceptua and ope	al model that is a powerful tool for erations of cloud computing <b>b.</b> Security.
1	4. :	discussi a. Ha	is a generic high-level construction is a generic high-level constructures,	onceptua and ope	I model that is a powerful tool for erations of cloud computing
1	4. :	discussin a. Ha c. NIS	is a generic high-level consistent of the requirements, structures, doop.	onceptua and ope	al model that is a powerful tool for erations of cloud computing <b>b.</b> Security.
1	4.	discussii a. Ha c. NI arc	is a generic high-level cong the requirements, structures, doop. ST cloud computing reference hitecture	onceptua and ope	al model that is a powerful tool for erations of cloud computing <b>b.</b> Security.
	4.	discussii a. Ha c. NI arc Accoun	is a generic high-level cong the requirements, structures, doop. ST cloud computing reference hitecture ting and Billing comes under _	onceptua and ope	al model that is a powerful tool for erations of cloud computing <b>b.</b> Security. <b>d.</b> ISO
	4. <u>-</u>	discussii a. Ha c. NI arc Accoun a. Clo	is a generic high-level cong the requirements, structures, doop. ST cloud computing reference hitecture	onceptua and ope	al model that is a powerful tool for erations of cloud computing <b>b.</b> Security.

16	. In cloud infrastructure is a	
	infrastructures	composition of two or more distinct cloud
	a. Private cloud.	h 0
	c. Public cloud	b. Community cloud.
		d. Hybrid cloud.
17.	In SaaS, Installing, managing, maintain	ning, and supporting the software application on a
	cloud Infrastructure is considered as	ing, and supporting the software application on a
	a. Consumer Activity	<b>b.</b> Provider Activity.
	c. Broker Activity	d. Carrier Activity.
		u. Carrier Activity.
		수약 성장 방송 방송 이 것이 같은 것이 같이 많이 많이 다.
18.	A Person, Organization or entity respon	nsible for making a service available to cloud
		a service available to cloud
	a. Cloud Consumer.	<b>b.</b> Cloud Auditor.
	c. Cloud Provider.	d. Cloud Broker.
10		동안 맛있는 것은 비행을 수 있는 것이 같아. 한 성상은 이것이라는 것은 것이다. 것이다.
19.	Cloud providers should protect the assur	red, proper, and consistent collection, processing,
	communication, use, and disposition of r	personal information (PI) and personally
		d system. This mechanism is will be
	$\boldsymbol{o}$	b. Execution.
	c. Privacy	d. Billing.
• •		승규가 잘 가슴다. 가장 아님, 이는 것은 것이 같아요. 이는 것이 않아요. 이는 것이 같아요. 이는 이는 것이 같아요. 이는 것이 않아요. 이는 이 이는 것이 않아요. 이는 것이 않아요. 이 않아요. 이 않아요. 이는 것이 않아요. 이는 것이 않아요. 이는 것이 않아요. 이는 않아요. 이는 않아요. 이는 것이 않아요. 이는
20.	A Cloud Broker enhances a given service	e by improving some specific capability and
	providing value-added services to cloud (	Consumers. This Service Category is referred as
		consumers. This Service Category is referred as
	a. Intermediation.	<b>b.</b> Aggregation
	c. Arbitrage.	88 Burron.
		d. Cloud Security
21.	Cloud computing use cases describe	
	a. Consumer goals and actions.	<b>b.</b> Billing
	c. Security.	B.
	이 같은 것은 것은 것은 것은 것을 수 없다.	
22. 1	dentify Phase of IT Standard Life cycle fr	rom following
8	requirements.	
C	e. Billing.	
	한 전 이 가지 않는 것 것 않는 것 같아	and an and the
23. I	f SDOs have not initiated any standard de	evelopment projects then Maturity level is
		velopment projects then Maturity level is
a	tio Standard.	b Under De 1
c.	Approved Standard.	<b>b.</b> Under Development.
		d. Technically Stable.
24. If	Reference implementation is available th Reference Implementation	100 motivity 1 1
a.	Reference Implementation.	b Traci
c.	I materioli.	<b>D.</b> Testing.
	inty.	d. Market Acceptance.
25.	is Cloud service life cycle ele	
	sorvice me cycle ele	ement.

8

	9	Negotiation performance.	b.	Testing.	
	а. с.	Commercial Availability.	d.	Market Acceptance.	
26.		is a digital coding system ded	icated	to preserve confidentiality and integrity	
20.	oft	he data.			
	a.	Accounting	b.	Billing.	
	c.	Encryption.	d.	Sunset.	
27.	The	e Common application of Hashing is	<b>b.</b>	 Accounting.	
	a.	Storing a password.	d.	Track Usage.	
	c.	Billing.		날랐다. 이 것은 것은 것은 것이 없는 것이 없는 것이 없는 것이 없다. 이 것이 없는 것이 않는 것이 않는 것이 않는 것이 않는 것이 없는 것이 없 않이	
28.	A	Cloud Broker combines and integrates mu	ıltiple	services into one or more new services.	
	Th	is Service Category is referred as	<u> </u>	Aggregation.	
	a.	Intermediation.	d.	Cloud Security	
	c.	Arbitrage.	u.	2월, 한국왕 2011년 1월 18일 - 18일 - 18일 - 18g - 18 - 18g - 18g	
п	Atte	empt any two of the following:		8	1
	a)	What are the 3 types of cloud defined by	the N	UST?	
	b)	What is reference architecture of cloud c	ompu	iting?	
	c)	What is a hardened virtual server image?	?	이 잘 같아요. 것 같아요	
	d)	Write a note on single sign-on (sso).			
Ш	Att	empt <u>any two</u> of the following:			8
	a)	Explain Cloud Usage Monitor.			
	b)	Explain Logical Network Perimeter.			
	c)	What do you mean by resource replicati	on?		
	d)	Write a short note on SLA management	syste	m.	
IV	Att	empt <u>any two</u> of the following:			8
	a)	Write a short note on Fundamental Clou	id Arc	chitecture	
	b)	Write a short note on Elastic Resource A	Archit	ecture.	
	c)	Write a short note on Hypervisor Cluste	ring /	Architecture.	
	d)	Explain Non-Disruptive Service Reloca	ition A	Architecture.	
V	At	tempt <u>any two</u> of the following:			8
	-a)	Describe common types of metrics used	to ev	valuate the estimated costs and	
		business value of leasing cloud-based I	Γ resc	ources.	
	b)	Explain the architecture and administration		f laaS cloud delivery model from	
		the point of view of the cloud provider.			
	<b>c</b> )	What is a Service-level agreement (SLA	4)? W	hy it is used? Explain various	
		measurable QoS characteristics.			
	d)	Explores the architecture and administr from the point of view of the cloud pro-	ation vider.	of SaaS cloud delivery models	