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M S RAMAIAH INSTITUTE OF TECHNOLOGY

(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU)

BANGALORE – 560 054

SEMESTER END EXAMINATIONS –JANUARY 2016

Course & Branch	**: B.E.- Information Science & Engg.**	**Semester**	**: VII**
Subject	**: Cloud Computing**	**Max. Marks**	**: 100**
Subject Code	**: IS71C3**	**Duration**	**: 3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT – I

1.	a)	Briefly explain the characteristics and advantages of network-centric computing and network-centric content paradigms.	C01	(10)
	b)	Illustrate how RAID-5 system can be used for reliable data storage by the Cloud Service Provider (CSP).	C01	(10)
2	a)	Define the term Cloud Computing and Compare the structure of the three cloud delivery models according to Cloud Security Alliance (CSA).	C01	(10)
	b)	Illustrate the limits of responsibility between the cloud user and Cloud Service Provider (CSP) at three service-delivery models (SaaS, PaaS, IaaS).	C01	(10)

UNIT – II

3.	a)	Illustrate different phases in the lifecycle of a workflow by taking an analogy of a computer program.	C02	(10)
	b)	What is MapReduce programming model? Show the sequence of actions in MapReduce programming model to count the number of occurrences of each word in a set of documents.	C02	(10)
4.	a)	Illustrate how zookeeper processes the read and write commands and list different service guarantees of zookeeper.	C02	(10)
	b)	Briefly discuss the importance of cloud computing for biological research by taking a case study.	C02	(10)

UNIT – III

5.	a)	Discuss different paravirtualization strategies for virtual memory management, CPU multiplexing and I/O devices for the x86 Xen implementation.	C03	(10)
	b)	Illustrate Xen zero-copy semantics for data transfer between guest domain and driver domain over an i/o ring and event channel.	C03	(10)
6.	a)	Define the term virtualization and Distinguish between Full virtualization and para virtualization.	C03	(10)
	b)	Discuss the problems faced by virtualization of the x86 architecture and solutions provided by VT-x and VMCS architectures.	C03	(10)

UNIT – IV

7.	a)	Illustrate the Start-Time Fair Queuing (SFQ) algorithm in an application having two threads with weights W_a=1 and W_b=4 and time quantum q=12. (Consider initially S^0_a=0, S^0_b=0, $V_a(0)$=0 and $V_b(0)$=0. Thread b blocks at time t=24 and wakes up at time t=60)	C04	(10)
	b)	What is a utility function and illustrate the utility function when the performance metric is response time (R).	C04	(10)
8.	a)	Write the pseudocode and schematics for the ASCA combinatorial auction algorithm in resource bundling.	C04	(10)
	b)	Illustrate the Start-time Fair Queuing (SFQ) tree when two virtual machines run on a powerful server.	C04	(10)

UNIT – V

9.	a)	Explain the architecture of Google File System (GFS) cluster and Illustrate the steps for a *write request* process that buffers data and decouples the control flow from the data flow in GFS cluster.	C05	(10)
	b)	Discuss different classes of cloud security risks and Explain the model to identify & classify attacks in cloud computing environment.	C05	(10)
10.	a)	What is a BigTable? Enumerate the organization of a BigTable showing sparse, distributed, multidimensional map for an email application.	C05	(10)
	b)	What is a megastore? Explain the organization of a meta store.	C05	(10)

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