June-2024 PG Examinations

USN | | | | | | | | | | |

MCN201B2

RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU, Belagavi)

I Semester Master of Technology (Computer Science Engineering)

DISTRIBUTED AND CLOUD COMPUTING (ELECTIVE)

Time: 03 Hours *Maximum Marks: 100*

Instructions to candidates:

1. Each unit consists of two questions of 20 marks each.
2. Answer FIVE full questions selecting one from each unit.

UNIT-1

			M	BT	CO
1	a	Identify and describe the classifications of parallel and distributed computing systems.	06	2	3
	b	Provide a clear diagram and explanation of the layered architecture for Web Services and Grid Computing.	06	3	2
	c	Examine the vulnerabilities and network threats in distributed and cloud computing systems.	08	3	4
		OR			
2	a	Describe various approached for handling massive parallelism in a distributed environment.	10	3	4
	b	Explain parallel and distributed programming models.	10	3	4

UNIT-2

3	a	With a neat diagram, describe the layered organization of the cloud stack.	10	2	1
	b	Describe the recent advancements in virtualization, multicore chips; service oriented architecture and data center automation.	10	2	2
		OR			
4	a	What is hardware virtualization? Illustrate with an example.	06	1	2
	b	Describe the essential features of cloud computing.	06	2	3
	c	Explain the challenges and risks associated with cloud computing.	08	3	4

UNIT-3

5	a	Define *SOA*. Describe the properties of *SOA* in the context of distributed systems.	06	2	3
	b	Explain *REST* architecture and its working principles demonstrating the interaction between user and server.	10	3	4
	c	List various standards in queuing and messaging systems.	04	2	2
		OR			
6	a	Describe basic workflow concepts in service oriented architecture.	10	2	3
	b	Explain the programming environment for Google App Engine and Google File System.	10	2	3

UNIT-4

7	a	Describe various levels of virtualization implementation with a neat diagram.	10	3	4
	b	With respect to Intel x86 processor, describe the *CPU* and memory virtualization.	10	3	3
		OR			
8	a	Define a physical cluster. Discuss critical design issues of virtual clusters.	10	2	3
	b	Discuss the need for data center automation and its virtualization. Explain two methods to achieve the same.	10	3	4

UNIT-5

9	a	Discuss the requirements and overall architecture of Google search engine.	10	3	4
	b	Describe and compare the different communication paradigm adopted by Google.	10	2	3
		OR			
10	a	Discuss the Chubby capabilities and corresponding *API's*. Draw and explain its architecture.	12	3	4
	b	Explain the overall program execution of MapReduce and Sawzall.	08	3	3