RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU, Belagavi)

I Semester Master of Technology (Common to MCE & MCN)

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 (1 to 5).

UNIT-1

1	a	Discuss Multi-threading technologies.	06
	b	Describe parallel and distributed programming models.	06
	c	Assess evolutionary changes since past 60 years in machine architecture, operating system platform, network connectivity and application workload and give detailed technological trends.	08
		OR	
2	a	What is cluster architecture for clusters of cooperative computers?	06
	b	Explain the *GPU* programming model.	06
	c	Discuss the evolution of *SOA* and the transformation of raw data to intelligent decision.	08

UNIT-2

3	a	Describe Hardware Virtualization and Virtual machine Monitor(*VMM*)	10
	b	Discuss the various basic and advanced features of virtual infrastructure manager(*VIMs*).	10
		OR	
4	a	Discuss the various layers and types of clouds.	10
	b	Discuss features and case study of Infrastructure as a Service providers.	10

UNIT-3

5	a	Describe the *REST* interaction between user and server in *HTTP* specification. Demonstrate a sample *REST* request- response that is used for creating an *S3* bucket.	10
	b	Discuss Amazon *EC2* execution environment.	06
	c	Discuss any four cloud platform capabilities.	04
		OR	
	a	What is Hadoop? Mention its usage by showing the data flow of running a MapReduce job in Hadoop.	08
	b	Discuss the programming model of Microsoft Azure.	06
	c	Illustrate with a diagram how data mutation is handled in *GFS*.	06

UNIT-4

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

UNIT-5

9	a	Discuss the overall architecture of Google search engine.	10
	b	Discuss and compare the different communication paradigm adopted by Google.	10
		OR	
10	a	Discuss the requirements of *GFS*(Google File system) and describe its architecture.	10
	b	Discuss the overall program execution of MapReduce and Sawzall programs. Provide the summary of design choices related to distributed computing.	10