MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL/MAY 2017

SUBJECT: PROGRAM ELECTIVE III - CLOUD COMPUTING [ICT 4017]
REVISED CREDIT SYSTEM
(29/04/2017)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer ALL questions.
❖ Missing data, if any, may be suitably assumed.

1A.	With a neat diagram explain the techniques that support memory over-commitment in hypervisor.	5
1B.	Explain the different phases involved in building the cloud infrastructure.	3

1C.	Write the significance of the following in the cloud environment
	    i. Enterprise Service Bus
	    ii. Raw Device Mapping
		2

2A.	Write a Python/Java program to display the welcome message along with current time for developing and hosting web application in Google App Engine.	5
2B.	An organization is experiencing tremendous data growth, which increased their storage requirements. Buying more high-end storage is not a cost-efficient solution for them. They require a solution at an optimal cost that enable storing the right data, at the right cost, with the right access. Identify and explain a solution to address this challenge.	3
2C.	With a suitable example explain how cloud provides Hadoop as a Service.	2
3A.	What is the significance of virtual infrastructure management? With a suitable example explain the key functions of unified management software to create cloud services.	5
3B.	The data transferring in a cloud between two hosts at 10AM with an average rate of 12Kbps bandwidth. After one minute bandwidth is increased more than an average rate to 20Kbps. Further at 10:12AM for three minutes bandwidth at peak 30Kbps. What is the burst size at 10:14AM? So how long the burst can stay if the data rate is 3.0Kbps?	3
3C.	Commoditization has influenced the development and implementation of the cloud computing paradigm. Justify your answer.	2

4A. Give any four advantages of Virtual Local Area Network (VLAN). Draw a neat   5
diagram for the scenario given below to demonstrate VLAN trunking.
Consider a scenario where an organization has three physical servers with hypervisor.
Virtual machine VM1, VM2, and VM3 reside in a physical server PS1, virtual
machine VM4 and VM5 are hosted on physical server PS2 and virtual machine VM6
is placed on physical server PS3. Each physical server has a virtual switch. These
virtual switches are connected to a common physical switch to enable network traffic
flow between them. VMs are connected to the respective virtual switches. The
organization has to set up four functional groups, each group with unique VLAN ID.
Marketing group: Includes VM1, VM4 and VM6
Production group: Includes VM2, VM3 and VM6
Service group: Includes VM2 and VM5
Finance group: Includes VM3

4B. With the suitable example explain how cloud governance help user and cloud service   3
provider.

4C. With a neat diagram explain desktop and application virtualization.   2

5A. How multi-tenancy is a key security concern in cloud? Explain any four key security   5
threats and its mitigation techniques for cloud infrastructure.

5B. What are the different modes of virtual machine migration between servers?   3

5C. Explain any four essential assessments that should be carried out by an organization   2
before deploying an application in cloud.