Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

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A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (COMPUTER AND COMMUNICATION ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL 2017

SUBJECT: CLOUD COMPUTING [ICT 356]

REVISED CREDIT SYSTEM
(29/04/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ANY FIVE FULL questions.
- Missing data 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 2
   i. Enterprise Service Bus
   ii. Raw Device Mapping

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 Database 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 diagram for the scenario given below to demonstrate VLAN trunking. 5

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 provider. 3

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 threats and its mitigation techniques for cloud infrastructure. 5

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 before deploying an application in cloud. 2

6A. What is thin LUN extent? With the help of suitable example, demonstrate how virtual provisioning helps in better capacity utilization compared to traditional provisioning. 5

6B. Write a short note on 3

i. Virtual machine cloning

ii. Cloud vendor lock-in

6C. Explain the technique involved in achieving the data optimization during backup process in the cloud environment. 2