MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL

A Constituent Institution of Manipal University

II SEMESTER M.TECH. (COMPUTER NETWORKING AND ENGINEERING/SOFTWARE ENGINEERING)

END SEMESTER EXAMINATIONS, APR/MAY 2017

SUBJECT: PROGRAM ELECTIVE II - CLOUD COMPUTING [ICT 5232]

REVISED CREDIT SYSTEM
(27/04/2017)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ALL** the questions.

❖ Missing data may be suitably assumed.

❖ Use Java language syntax for coding.

1A. Explain NIST Reference Architecture of Cloud Computing with neat diagram. | 5

1B. The cost of designing, building and testing the API for the "Weather Forecasting" service is Rs. 30000/-. The cost of downtime is Rs. 500/- per month, the cost of on-going maintenance is Rs. 2000/- per month and the cost of data subscription is Rs. 1000/- per month. The onetime cost of Web API is Rs. 2000/- and on-going cost of Web API Rs. 900/-. Find the savings of "Weather Forecasting" service for one-time cost and on-going cost. | 3

1C. State and differentiate the different deployment models supported by Azure resources. | 2

2A. Compute the percentage of user base who were talking about the subject related to greetings? Below are the statements on which computation has to be done. State which technique will be used with suitable figure. | 5

> "Hi, how are you"
> "We love football"
> "He is an awesome football player"
> "Merry Christmas"
> "Olympics will be held in China"
> "Records broken today in Olympics"
> "Yes, we won 2 Gold medals"
> "He qualified for Olympics"

2B. Define REST with suitable example. Write REST Request and Response code to get the details of Book (Book Name, Author, Publication, Year) by providing Book Id. | 3

2C. State challenges of cloud computing. | 2

3A. What are the challenges faced by VMware ESX Server when it supports virtualization in X86 architecture? How these challenges are overcome using XEN Hypervisor? Explain with suitable figure. | 5

3B. Kedharnath has huge amount of data to be stored in a persistent LUN storage system. Out of which 40% of data is rarely used and rest is used frequently. Suggest a suitable method for automated storage tier-ing and the drives used for the storage of his data.   3

3C. How virtual provisioning is different from traditional provisioning?   2

4A. Use start-time fair queuing (SFT) scheduling algorithm to compute virtual start-up and virtual finish time for two threads a and b with weights $w_a=1$ and $w_b=5$ when the time quantum, $q=15$ and thread b blocks at time $t=24$ and wakes up at time, $t=54$. Plot the virtual time of the scheduler function of the real time.   5

4B. Govt. of India is planning to migrate income tax filing to cloud, but the major roadblock is to manage the unpredictable load occurring during March –April month when number of users using the application is the highest. Suggest a solution to manage the unpredictable load efficiently and cost effectively.   3

4C. Load balancing is distributing the workload evenly among all servers. Justify in accordance with CRM policies. Give suitable example/scenario.   2

5A. Parth is approached for a project "e-HealthCare" .This project involves login creation for different roles such as doctor, patients, admin and other staff. The requirement mandates confidentiality of patient's data. Since it deals with huge data, Parth puts up a suggestion to migrate it to cloud. Suggest a deployment model he should use for this project and major security risks and concerns he should consider for migrating it to cloud in terms of its user.   5

5B. What are the different VMM and VM based threats?   3

5C. There is a price to pay for the benefits of virtualization. Justify.   2