Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

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

END SEMESTER EXAMINATIONS, APRIL 2018

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

REVISED CREDIT SYSTEM
(25/04/2018)

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. An organization wants to implement security at compute level in Virtual Data Center (VDC). Suggest and explain security mechanisms by considering all components of compute virtualization. 5

1B. 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 allows storing the right data, at the right cost, with the right access. Identify and explain a solution to address this challenge. 3

1C. Why user state virtualization is required in desktop virtualization? 2

2A. What are the limitations of round robin queuing mechanism and how these limitations are addressed in byte by byte round robin fair queuing technique? Also compute the fair queuing flow for the following data: 5

i) Flow 1 and Flow 3 uses 2000 bytes of packets
ii) Flow 2 uses 600 bytes of packets

2B. Explain five characteristics of cloud computing with suitable examples. 3

2C. How open source platforms of private cloud provides cost-effective alternative for very large organizations? 2

3A. With a neat diagram explain the techniques that support memory over-commitment in hypervisor. 5

3B. Define Thin Provisioning. Demonstrate the thin provisioning technique with the help of a neat diagram by taking an example of total usable capacity of the storage system 100TB. Three thin LUN of 20TB, 25TB and 50TB are created with thin LUN extent of 5TB. 3

3C. Differentiate between service aggregation and service arbitrage blocks of NIST reference architecture. 2

4A. Write the complete REST request and response code to view the list of the books, fetch the book details and order the books using HTTP methods as shown in the Fig.Q.4A. The details of book contains (Book Id, Book Name, Author, Publication, and Year). Also explain how REST web service uses less bandwidth and resources compared to SOAP protocol. 5

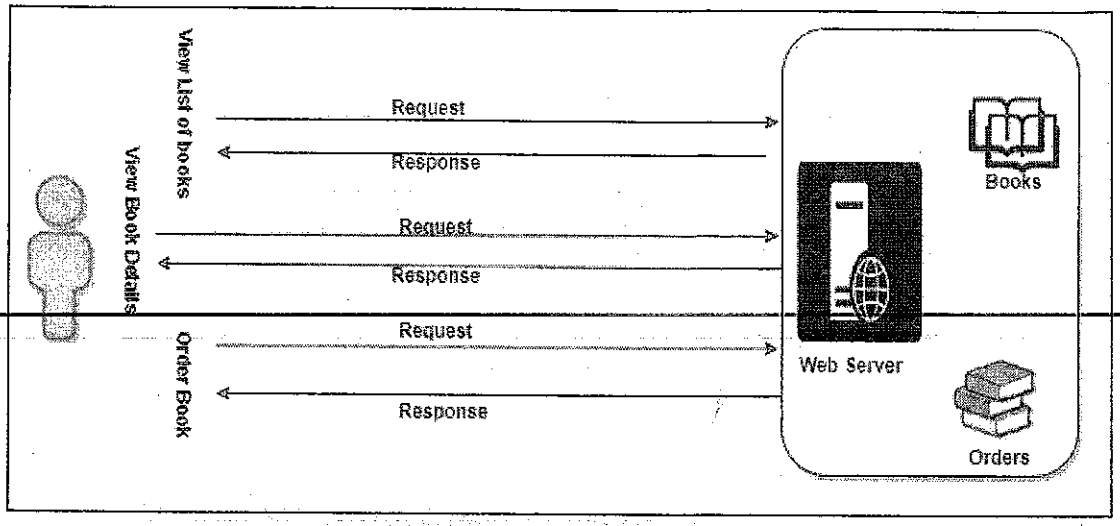

Fig.Q.4A: REST request and Response message

4B. Explain virtual machine files and file management system. 3

4C. Consider the case of four identical servers, *A, B, C,* and *D,* whose relative load capacities are 80%, 60%, 40%, and 20% respectively. Show the load distribution and suitable energy optimization among all the servers with neat diagram. 2

5A. Client XYZ is approached to a project team to develop an application for HealthCare system. This project involves giving patient health record access to all the hospitals in a region. The requirement mandates confidentiality of patient's data. Since it deals with huge data, Project team suggested to use the cloud platform for the storage and access. Since client XYZ is new to cloud platform write an answer for the following questions: 5

i) Which is the best deployment model for the healthcare project?
ii) What are the major security risks and concerns client should consider for migrating to the cloud?
iii) What are the different vendor lock-in risk, if client wants to switch from one provider to others?

5B. List out the key components of Physical to Virtual Machine (P2V) Converter. With the help of a neat diagram, explain the working of hot conversion process. 3

5C. Explain the concept of "Raw Device Mapping" with a neat diagram. 2