Reg. No.										

प्रज्ञानं ब्रह्म

Manipal
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MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

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SECOND SEMESTER M. Tech(N/W Engg. & S/W Engg.) DEGREE END SEMESTER EXAMINATION, MAY– 2016
SUBJECT: CLOUD COMPUTING – ICT 584 (PROGRAM ELECTIVE III)
(REVISED CREDIT SYSTEM)

TIME: 3 HOURS **12/05/2016** **MAX. MARKS: 50**

Instructions to candidates

- Answer any **FIVE FULL** questions.
- Missing data, if any, may be suitably assumed.

1A. Explain the essential characteristics of cloud computing.
1B. Write neat diagrams depicting the example usage scenarios for cloud broker, carrier, and auditor.
1C. Write a note on 2 variations of private cloud.

[5+3+2]

2A. Consider a scenario of a procedure followed for fund transferring between two banks by email as follows: The person sending the money contacts his bank (the Sender bank), specifying from which account to draw the funds, how much money to send, and the name and email address of the recipient. The Sender bank sets aside the amount and sends an email to the recipient with instructions on how to complete the transfer. The Recipient bank submits the transfer request to the Sender bank. The Sender bank accepts, and the funds are moved into the recipient's account, completing the transfer. At any point, either the sender or recipient may cancel the transfer, or the transaction is automatically canceled if not completed within 30 days. On cancellation, the funds are returned to the sender's account. Assume both banks are members of the email transfer programme. Write a neat diagram depicting the email transfer choreography hub and explain.
2B. What is Database-as-a-Service? Write its benefits and drawbacks.
2C. Briefly explain about the enterprise service bus ESB. [5+3+2]

3A. Explain the following CPU optimization techniques.
(i) Multicore processors
(ii) Hyper-threading
(iii) CPU load balancing
3B. What are the major elements used to describe a web service by a WSDL document? Explain.
3C. Write the configurations performed using management interface by considering the storage management and compute management as virtual infrastructure management software.

[5+3+2]

4A. Consider a project of provisioning storage using a non-Thin Provisioning storage array. A small array with 1TB of physical storage is available. The project requires creating four volumes for various applications for which the size of the data requirements is decided. In anticipation of future growth, additional capacity for each of the volumes is allocated. The table given below indicates the current sizes of data, the sizes of the volumes to be created, and the space that will consequently be reserved or allocated for those volumes. Find the effective utilization of the allocated storage space in percentage.

Disk Volume	Current Data Size (GB)	Volume Size (GB)	Allocated Space (GB)
Volume 1	150	300	300
Volume 2	170	300	300
Volume 3	160	250	250
Volume 4	60	100	100
Total Sizes	540	950	950

Suppose, a few months later, One day there is a need to create another volume for the project that will require about 90GB, but could grow up to 200GB. Thin Provisioning manager is used to create another volume from the pool and size it to 200GB. Modify the above table and show the updated contents for thin provisioning. Determine the percentage utilization of the updated storage pool. What is the remaining available storage for the growth of the 5 volumes?

4B. Compare Full virtualization with binary translation, hardware assisted virtualization, and OS assisted virtualization based on the technique used, guest modification/compatibility, and guest OS hypervisor independence.

4C. Differentiate between VM to VM affinity and VM to physical server affinity.

[5+3+2]

5A. Explain the following key network traffic management techniques:
(i) Storm control (ii) Limit and Share (iii) Traffic Shaping

5B. What are the building blocks of storage tiering? Explain.

5C. Differentiate between zoning and LUN masking.

[5+3+2]

6A. Explain the following basic terminology with respect to cloud information security:
(i) CIA Triad (ii) Authentication, Authorization, Auditing (iii) Multifactor Authentication
(iv) Defense-in-depth (v) Encryption

6B. Differentiate between Hot-On, Hot-Suspended, and Concurrent server-to-server migration in cloud in order to ensure business continuity.

6C. Briefly describe 2 key cloud performance considerations.

[5+3+2]

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