CSPE731

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M S RAMAIAH INSTITUTE OF TECHNOLOGY

(AUTONOMOUS INSTITUTE, AFFILIATED TO VTU)

BANGALORE – 560 054

SEMESTER END EXAMINATIONS – JANUARY 2015

Course & Branch	:	**B.E:- Computer Science and Engineering**	**Semester**	:	**VII**
Subject	:	**Cloud Computing**	**Max. Marks**	:	**100**
Subject Code	:	**CSPE731**	**Duration**	:	**3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.
- Draw diagrams where ever necessary.

UNIT – I

1. a) i) Arrange the following service provider according to their services and functions provided: Paas, Saas, Iaas, scalable cloud OS, Cloud solution for scientific applications, loads structured data. (06)

   Google Base, Windows Azure, Amazon web services, Google App Engine, Nimbus, Openstack.

   ii) Design cloud types for the following management/populations.

   Research institution, large industry group, a university, corporation, general public, state government.

   b) Justify by pointing out the desirable properties of P2P model that represents a significant departure from the client server model. (06)

   c) Using the concept of energy-proportional systems and that system components having different dynamic ranges, Sketch a strategy to reduce the power consumption in a lightly-loaded cloud and discuss the steps for placing a computational server in a standby mode and then for bringing it back up to an active mode. (08)

2. a) Outline the features and functions of the following services offered by AWS: EC2, S3, EBS, SQS. (08)

   b) What is meant by Vendor lock –in? Suggest a solution to guard against it. (06)

   c) Mention the Ethical issues in cloud computing and the proactive activities to solve the issues. (06)

UNIT – II

3. a) List and explain the several types of data processing and batch processing applications that can be identified. (10)

   b) Define workflow. Mention the type of Workflow pattern that best fit for the following scenarios, Draw the pattern and Explain it. (10)

      i) Production line - Betty cannot affix the radiator cap to the Model T Ford until Veronica has put the radiator in place.

      ii) Project team - Sarah must wait for several tasks to be completed by Kevin and George before she can execute her task.

      iii) An application user selecting a task from the work list, or a message being received by the process execution engine.

4. a) What is Zookeeper? Mention services guaranteed by it and its API operation. (10)

   b) Appraise Cirrus, a general platform for executing legacy windows applications on the cloud with a neat diagram. (10)

UNIT – III

5. a) Examine the rules for binary code generation of the untrusted plug-in in software fault isolation. (04)

   b) Discuss the means by which Virtualization simulates the interface to a physical object and mentions its important role. (08)

   c) With a Neat diagram point out the interfaces among the software and hardware components, explain the use of layering and virtualization. (08)

6. a) Distinguish the two types of virtual machines and give examples for each type of virtual machine. (08)

   b) Draw the Xen Zero-copy semantics for data transfer using I/O rings and explain. (06)

   c) Define Virtual machine monitor and summarize its importance in virtualization (06)

UNIT – IV

7. a) List and explain the policies and mechanism for cloud resource management and implementation. (08)

   b) What are the computing resources in demand that requires management? What does scaling, its type and elasticity has to do with the evaluation of a cloud system? (08)

c) Write the expression and condition that has to be satisfied for max-min criterion for fair allocation and CPU scheduling. (04)

8. a) Use the start-time fair queuing (SFQ) scheduling algorithm to compute the virtual startup and the virtual finish time for two threads a and b with weights wa = 1 and wb = 5 when the time quantum is q = 15 and thread b blocks at time t = 24 and wakes up at time t = 60. Plot the virtual time of the scheduler function of the real time. (10)

b) Considering the case study of control system resource management discuss its various disadvantages and also mention how we can overcome those disadvantages. (10)

UNIT – V

9. a) Explain in detail the Network File System with a neat diagram of the NFS Client–Server Interaction. (08)

b) List the different types of Locks and explain its functions to design reliable distributed storage systems. (06)

c) Discuss in brief the Megastore Data Model. (06)

10. a) Analyze Amazon privacy policies and design a service level agreement you would sign on if you were to process confidential data using AWS. (08)

b) Identify the three broad classes of cloud security risks. With the help of a diagram. (08)

c) Discuss the cloud-based simulation for trust evaluation in a Cognitive radio network. (04)

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