

Code No: **RT42043E**

**R13**

**Set No. 1**

**IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019**

**CLOUD COMPUTING**

**(Common to Computer Science and Engineering & Electronics and Communication Engineering)**

**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) Describe Gustafson's Law. [3]  
b) Explain middleware support for virtualization. [4]  
c) What is enterprise bus? Explain. [3]  
d) What is Amazon S3? Explain. [4]  
e) Explain feedback control based on dynamic thresholds. [4]  
f) Discuss about Apache Hadoop. [4]

**PART-B (3x16 = 48 Marks)**

2. Briefly explain the following terms associated with network threats or security defense in a distributed computing system:  
(a) Denial of service (DoS) (b) Trojan horse (c) Network worm (d) Service spoofing (e) Authorization (f) Authentication (g) Data integrity (h) Confidentiality [16]
3. a) Explain about virtualization support at the OS level. [8]  
b) Discuss about live VM migration steps and performance effects. [8]
4. a) Describe REST and systems of systems in detail. [8]  
b) What are public cloud platforms? Explain in detail. [8]
5. a) Discuss about Hadoop library from Apache. [8]  
b) Explain about OpenNebula, Sector/Sphere and OpenStack. [8]
6. a) What are scheduling algorithms for computing clouds? Explain. [8]  
b) Explain in detail about start-time fair queuing. [8]
7. a) Discuss about distributed file systems: the precursors. [8]  
b) Describe Google File System in detail. [8]

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*Answer ALL sub questions from Part-A*

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**PART-A (22 Marks)**

1. a) Explain about Dimensions of Scalability. [3]  
b) Describe Hypervisor and Xen architecture. [4]  
c) What are extended cloud computing services? Explain. [4]  
d) Explain about Amazon EC2. [4]  
e) Describe policies and mechanisms for resource management. [4]  
f) What is Megastore? Explain. [3]

**PART-B (3x16 = 48 Marks)**

2. Briefly explain each of the following cloud computing services. Identify two cloud providers by company name in each service category.  
(a) Application cloud services (b) Platform cloud services (c) Compute and storage services (d) Collocation cloud services (e) Network cloud services [16]
3. a) Distinguish between physical and virtual clusters. [8]  
b) Explain about para-virtualization with compiler support. [8]
4. a) Discuss about cloud eco systems and enabling technologies. [8]  
b) What are cloud or grid middleware applications? Explain. [8]
5. a) Explain in detail about programming the Google App Engine. [8]  
b) Discuss about Microsoft Azure programming support. [8]
6. a) Explain about cloud scheduling subject to deadlines. [8]  
b) Discuss in detail about a utility-based model for cloud-based web services. [8]
7. a) Explain about Google file system. [8]  
b) Discuss in detail about locks and Chubby. [8]

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**Set No. 3**

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**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) Describe the evolution of SOA. [3]  
b) Explain about CPU virtualization. [4]  
c) Describe enterprise multitier architecture. [4]  
d) Explain about Google's distributed lock service. [4]  
e) Discuss about Fair Queuing. [3]  
f) Describe the evolution of storage technology. [4]

**PART-B (3x16 = 48 Marks)**

2. Briefly define the following basic techniques and technologies that represent recent related advances in computer architecture, parallel processing, distributed computing, Internet technology, and information services:  
(a) High-performance computing (HPC) system (b) High-throughput computing (HTC) system (c) Computer cluster versus computational grid (d) Service-oriented architecture (SOA) (e) Pervasive computing versus Internet computing (f) Virtual machine versus virtual infrastructure (g) Public cloud versus private cloud (h) Radio-frequency identifier (RFID). [16]
3. a) What are levels of virtualization implementation? Explain. [8]  
b) Explain about binary translation with full virtualization. [8]
4. a) Discuss about resource provisioning and platform deployment. [8]  
b) Explain about vulnerability, threats and attacks in cloud with a real time example. [8]
5. a) Explain about Dryad and DryadLINQ from Microsoft. [8]  
b) Describe open Source Eucalyptus and Nimbus in detail. [8]
6. a) Explain about the Borrowed virtual time scheduling. [8]  
b) Explain about stability of a two-level resource allocation architecture. [8]
7. a) Explain in detail about Amazon Simple Storage Service. [8]  
b) Describe transaction processing and NoSQL databases. [8]

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**Time: 3 hours**

**Max. Marks: 70**

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any THREE questions from Part-B*

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**PART-A (22 Marks)**

1. a) What are major categories of P2P network families? [4]  
b) Describe virtual storage management. [4]  
c) Explain about Amazon Web Services. [3]  
d) Discuss about Google File System. [4]  
e) Describe policies and mechanisms for resource management. [4]  
f) Explain about BigTable. [3]

**PART-B (3x16 = 48 Marks)**

2. a) Characterize the following three cloud computing models:  
(a) What is an IaaS (Infrastructure-as-a-Service) cloud? Give one example system. (b) What is a PaaS (Platform-as-a-Service) cloud? Give one example system. (c) What is a SaaS (Software-as-a-Service) cloud? Give one example system. [14]  
b) Define cloud computing as per National Institute of Standards and Technology. [2]
3. a) Explain about dynamic deployment of virtual clusters. [8]  
b) Define virtualization. Explain virtualization in multi-core processors. [8]
4. a) Discuss about reputation-guided protection of data centers. [8]  
b) Briefly explain about message oriented middleware. [8]
5. a) Describe Sawzall and Pig Latin High-Level Languages in detail. [8]  
b) Explain about Manjrasoft Aneka Cloud and appliances. [8]
6. a) What is borrowed virtual time? Explain in detail. [8]  
b) Discuss about applications of control theory to task scheduling on a cloud. [8]
7. Explain the following:  
a) Storage models, file systems and databases  
b) General parallel file system [16]