



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR) - DECEMBER 2023

Regulation: UG-20

CLOUD APPLICATION DEVELOPMENT

Time: 3 Hours

(COMMON TO CSE | CSIT)

Max Marks: 70

Answer ALL questions in Module I and II

Answer ONE out of two questions in Modules III, IV and V

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

MODULE – I

1. (a) Explain the structure of various cloud computing delivery models with suitable diagram.
[BL: Understand| CO: 1|Marks: 7]
- (b) Summarize the various cloud services offered by Amazon web services. Elaborate about the google clouds services in detail.
[BL: Understand| CO: 1|Marks: 7]

MODULE – II

2. (a) Differentiate compute intensive and data intensive. Illustrate the multi-tier architecture application in detail.
[BL: Understand| CO: 2|Marks: 7]
- (b) Assume that each server has an MTBF of 200 days and an MTTR of five days. The disk has an MTBF of 800 days and an MTTR of 20 days. In addition, each server is shut down for maintenance for one day every week, during which time that server is considered unavailable. Only one server is shut down for maintenance at a time. The failure rates cover both natural failures and scheduled maintenance. The SCSI bus has a failure rate of 2 percent. The servers and the disk fail independently. The disk and SCSI bus have no scheduled shutdown. The client machine will never fail. Explain solution for this problem with justification.
[BL: Apply| CO: 2|Marks: 7]

MODULE – III

3. (a) Classify various types of virtual machines. Outline the concept of virtualization in detail.
[BL: Understand| CO: 3|Marks: 7]
- (b) What are the benefits of using binary translation in cloud computing? Paraphrase XEN x86 architecture in detail with suitable diagram.
[BL: Understand| CO: 3|Marks: 7]
4. (a) List the different types of virtualization techniques. Discuss briefly about the kernel based virtual machine (VM) in detail.
[BL: Understand| CO: 4|Marks: 7]
- (b) Differentiate the concepts of full and para virtualization in detail. The VMs practically share all resources of the virtual infrastructure including virtual switch. Justify statement with explanation.
[BL: Apply| CO: 4|Marks: 7]

MODULE – IV

5. (a) List and discuss the various policies of cloud resource management and scheduling. [BL: Understand| CO: 5|Marks: 7]
- (b) Why we need deadlines for cloud scheduling? Differentiate the concepts of resource bundling and combinatorial in detail. [BL: Understand| CO: 5|Marks: 7]
6. (a) Describe the borrowed virtual time algorithm in detail. Compare fair queuing and start time fair queuing. [BL: Understand| CO: 5|Marks: 7]
- (b) Why we need optimal partitioning rule? Explain how to schedule map reduce applications subject to deadlines? [BL: Understand| CO: 5|Marks: 7]

MODULE – V

7. (a) Mention the cloud security alliance reported risks. Give the detailed explanation about a dedicated security VM with an example. [BL: Understand| CO: 6|Marks: 7]
- (b) Compare the benefits and the potential problems due to virtualization on public, private, and hybrid clouds. [BL: Understand| CO: 6|Marks: 7]
8. (a) Outline the main aspects of cloud security and list the widely accepted fair information practices. [BL: Understand| CO: 6|Marks: 7]
- (b) Elaborate the various operating system issues and vulnerabilities. Summarize about technologies for virtualization-based security enhancement. [BL: Understand| CO: 6|Marks: 7]

