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**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SEVENTH SEMESTER B.TECH DEGREE EXAMINATION (R), DECEMBER 2023****COMPUTER SCIENCE AND ENGINEERING****(2020 SCHEME)****Course Code : 20CST421****Course Name: Cloud Computing****Max. Marks : 100****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Mention the cloud model suitable for a hospital data management system which demands maximum protection for data.
2. With an example, define a hybrid cloud.
3. What are the primary advantages of virtualizing physical computing resources? Provide at least three benefits.
4. Explain the concept of "live migration" in the context of virtual machines.
5. Enumerate the differences between static and dynamic resource provisioning techniques in data center technology. Provide an example of when each approach is appropriate.
6. What is the Hadoop library from Apache, and how does the Hadoop Distributed File System (HDFS) contribute to its functionality?
7. Explain the concepts of identity and access management (IAM) and access control in the context of cybersecurity.
8. What are the primary security challenges associated with managing and securing virtualization technology?
9. Describe the key features and benefits of Google Cloud Storage as part of Google Cloud Platform's storage services.
10. What are the core services offered by Google App Engine (GAE) as a Platform as a Service (PaaS) offering in Google Cloud Platform?

**PART B*****(Answer one full question from each module, each question carries 14 marks)*****MODULE I**

11. a) With the help of a diagram explain NIST reference Model. (8)
- b) Explain various cloud deployment models with examples. (6)

**OR**

12. a) With the help of examples explain cloud delivery models. (9)
- b) Compare and Contrast Cloud Computing and Grid Computing. (5)

**MODULE II**

13. a) Explain the concept of paravirtualization in Xen. How does it enhance virtualization performance and efficiency? (6)
- b) List out the advantages and disadvantages of using hardware-assisted virtualization in comparison to para-virtualization. Provide examples of hypervisors that utilize hardware-assisted virtualization. (8)

**OR**

14. a) Explain the concept of binary translation and interpretation. (8)
- b) Describe the role of containerization in OS-level virtualization. (6)

**MODULE III**

15. a) Explain the fundamental principles and components of Eucalyptus in cloud computing. How does it enable private cloud infrastructure? (8)
- b) Compare and contrast OpenStack and Cloud Stack as open-source platforms for building private clouds. (6)

**OR**

16. a) Explain the MapReduce programming model and its significance in processing large-scale data in distributed computing environments (7)
- b) Explain the role of Internet Service Providers (ISPs) in the architecture of broadband networks. How do they facilitate internet connectivity for end-users? (7)

**MODULE IV**

17. a) Briefly explain the security threats posed by shared images. (6)
- b) Define and provide examples of threat agents in the context of cybersecurity. How do threat agents pose risks to an organization's information security? (8)

**OR**

18. a) Explain the concept of threat modeling as a proactive approach to security. How does threat modeling assist organizations in identifying and mitigating security vulnerabilities? (8)
- b) Describe the concept of zero trust security and its relevance in today's cybersecurity landscape. (6)

**MODULE V**

19. a) Explain the architecture of Microsoft Azure. (8)
- b) Compare and Contrast Amazon EC2 and Amazon S3. (6)

**OR**

20. a) Describe about the Amazon CDN services. (6)  
b) Explain the architecture of Google App Engine (GAE). (8)

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