

**M.E. Computer Science and Engineering First Year Second Semester - 2025**

**Cloud Computing**

Time: 3 hours

Full Marks: 100

Answer Question No. 1

AND

Answer ANY FOUR (4) questions from Question nos. 2, 3, 4, 5, 6,7, 8

1. Mention / Tick the correct option for each question. [1X20=20]
- i) Users are able to provision computing resources as needed. a. True b. False
  - ii) PAAS does not allow developers to build applications. a. True b. False
  - iii) Zero trust puts emphasis on trust. a. True b. False
  - iv) Single sign-on reduces the need for multiple credentials. a. True b. False
  - v) Efficient use of cloud computing resources requires
    - a. Load Balancing b. Migration c. Parallel processing d. all of these
  - vi) Live migration interrupts ongoing services. a. True b. False
  - vii) Efficient resource allocation is necessary for parallel processing. a. True b. False
  - viii) Google cloud Load balancing uses multiple load balancers. a. True b. False
  - ix) Interface vulnerability is not a security risk. a. True b. False
  - x) Permanent data loss in cloud servers may be avoided through data replication.
    - a. True b. False
  - xi) Deterrent controls inform potential attackers directly or indirectly. a. True b. False
  - xii) Cloud security is an off-the-shelf product. a. True b. False
  - xiii) Cloud computing security shall be managed by:
    - a. Users b. Cloud Service Provider c. Both a and b d. None of these
  - xiv) Google App Engine (GAE) is an IAAS. a. True b. False
  - xv) Google Cloud Platform (GCP) may be considered as a cloud ecosystem.
    - a. True b. False
  - xvi) Amazon EC2 provides virtual servers for computing. a. True b. False
  - xvii) Amazon ECS provides virtual servers for computing. a. True b. False
  - xviii) GAE supports language/s like:
    - a. Java b. Python c. PHP d. all of these
  - xix) IT proficiency is required to set up Community cloud a. True b. False
  - xx) Kubernetes is an open-source platform acting as container-orchestration system.
    - a. True b. False

[ Turn over

- 2.
- What is the concept of cloud computing? How is multi tenancy supported in Cloud computing? Why do users feel there is limited control over infrastructure while accessing cloud services? How can IoT be related to cloud computing? [2+3+3+3=11]
  - What is a hypervisor? What are its types? [2+3=5]
  - How can cloud service abuse happen? What is isolation failure? [4]
- 3.
- What technologies are used by Service Oriented Architecture? What is meant by “computing as a service”? What are the different types of storages available in cloud computing? What is Cloud Computing Open Architecture (CCOA)? What are the major cloud security challenges? How does access control ensure security? [3+2+3+3+2+2=15]
  - What is multifactor authentication? What are the possible ways of data leakage? [5]
- 4.
- What is meant by Network Virtualization? How can it be achieved? [2+4=6]
  - How can you relate load balancing and migration? [3]
  - What are the differences between edge computing and fog computing? What are their similarities? [4]
  - Why is audit logging important for an organisation? [3]
  - What are the components of a microservice? [4]
- 5.
- What is Searchable Symmetric Encryption? How is it used to search ranked keyword? [5]
  - How can Spark be built with Hadoop components? How is Spark used? [8]
  - What services does Google Cloud Platform (GCP) offer? [7]
- 6.
- Why is Interpretation technique generally considered to be slower than Binary Translation? [4]
  - Compare Service Oriented Architecture (SOA) and Micro Services Architecture. [4]
  - What is searchable encryption? [4]
  - What are the Apache Spark components? Briefly state the function of any two. [8]
- 7.
- What are the characteristics of Zero trust security? What does it achieve? How can it be implemented? [3+3+4=10]
  - What is SIEM? What are its main tasks? [2+4=6]
  - How can you compare static binary translation and dynamic binary translation? [4]
- 8.
- What is microservice? Give examples. How can it be related to cloud computing? Explain. [8]
  - What are the key features of Amazon Web Services (AWS)? Mention any two use cases of AWS. [6]
  - What is the relationship between docker and container? Explain. [6]