VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be University)
-Estd. u/s 3 of UGC Act 1956

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(22CS403) CLOUD COMPUTING

MODULE-1 QUESTION BANK

1. Question-1
    a. Analyze the core components and functionalities of the Google App Engine platform, including its data storage, application execution environment, and scaling mechanisms.
    b. Assess the suitability of partial and full virtualization approach for different workload types and use cases.
    c. Discuss the challenges and opportunities presented by emerging hardware architectures (e.g., GPUs, FPGAs) for parallel computing.
2. Question-2
    a. With an example describe the core functionalities and benefits of Amazon Virtual Private Cloud (VPC).
    b. Illustrate the concept of application-level virtualization using a practical example.
    c. Differentiate data parallelism and process parallelism in terms of their use cases and performance benefits.
3. Question-3
    a. Justify the benefits of using AWS for building cloud infrastructure by analyzing its impact on business agility, cost-efficiency, and time-to-market.
    b. Compare and contrast Type I and Type II hypervisors in terms of performance, security, and management overhead.
    c. Dissect the logical arrangement of software components in a distributed system, considering factors such as communication, data management, and fault tolerance.
4. Question-4
    a. Compare and contrast the application development processes, key features, and deployment models offered by Google App Engine and Microsoft Azure.
    b. Apply the concept of network virtualization to design a secure and flexible network infrastructure for N-Block, considering factors such as virtual LANs (VLANs) and software-defined networking (SDN).
    c. Inspect the virtualization approaches of Xen, VMware, and Hyper-V in terms of their performance, security, and resource utilization efficiency.
5. Question-5
    a. Analyze the overall impact of cloud computing on data privacy, considering factors such as data breaches, regulatory compliance, and consumer trust.
    b. Justify the suitability of the client-server model for cloud-based applications, considering factors such as scalability, performance, and security.
    c. Evaluate the performance implications of using the Request-Reply model versus the Pub/Sub model for real-time data processing in a financial trading system. Consider factors such as latency, throughput, and resource utilization.
6. Question-6
    a. Analyze the impact of virtualization on cloud computing efficiency in terms of resource utilization, scalability, and cost-effectiveness.
    b. Discuss the security challenges associated with managed execution and how they can be addressed.
    c. Can you provide an example to demonstrate how SOC is implemented in a specific cloud service delivery model (SaaS, PaaS, or IaaS)?
7. Question-7
    a. Investigate the impact of utility-oriented computing on the evolution of cloud infrastructure and its service delivery models.
    b. Examine the role of virtualization as a foundational technology for cloud computing, considering its contributions to resource pooling, elasticity, and isolation.

c. Compare and contrast the core service offerings, pricing models, and target market segments of AWS, Google App Engine, and Microsoft Azure.

8. Question-8
    a. Illustrate live migration and server consolidation with a real-world example, explaining the benefits and challenges involved.
    b. Analyze the performance implications of deploying different types of applications (e.g., web servers, databases, big data processing) on Amazon EC2, considering factors such as instance type, network configuration, and storage options.
    c. Identify a specific use case within the VFSTR campus suitable for a XaaS deployment model. Elaborate on how the chosen XaaS model (IaaS, PaaS, SaaS) can streamline application development, deployment, and management.
9. Question-9
    a. Categorize the various cloud deployment models, providing a real-world example for each category.
    b. Analyze how Hyper-V utilizes both paravirtualization and full hardware virtualization techniques to provide a hybrid solution, contrasting its approach with Xen and VMware.
    c. Evaluate the effectiveness of AWS in providing infrastructure solutions for different organizational sizes and industry sectors.
10. Question-10
    a. Analyze the economic implications and challenges associated with cloud computing adoption, considering factors such as capital expenditure (CapEx) to operational expenditure (OpEx) shifts, vendor lock-in, and security costs.
    b. Compare and contrast the architectural components, service offerings, and target market segments of Pure-PaaS and traditional PaaS platforms.
    c. Evaluate the trade-offs between Amazon S3 and Google Cloud Storage in terms of cost, performance, scalability, and feature sets for various storage use cases.