

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Bachelor of Technology (Computer Engineering) SEMESTER - 7 Winter 2025 (Regular)

Course :Bachelor of Technology (Computer Engineering) Branch : Engineering and Technology

Semester : SEMESTER - 7

Subject Code & Name: BTCOC702 - CLOUD COMPUTING

Time : 3 Hours]

[Total Marks : 60

Instructions to the Students:

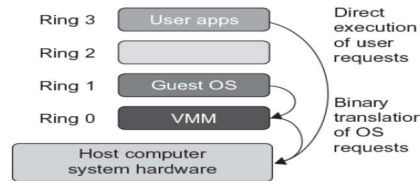
1. Each question carries 12 marks.
 2. Question No. 1 will be compulsory and include objective-type questions.
 3. Candidates are required to attempt any four questions from Question No. 2 to Question No.6
 4. Use of non-programmable scientific calculators is allowed.
 5. Assume suitable data wherever necessary and mention it clearly.
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Q1. Objective type questions. (Compulsory Question)

12

- 1 What is the main difference between Type 1 and Type 2 hypervisors?
A) Type 2 runs faster than Type 1
B) Type 1 requires a host OS, Type 2 does not
C) Type 1 runs on bare metal, Type 2 runs on top of an OS
D) Type 2 supports more guest OSs than Type 1
- 2 A developer wants to test an unmodified Linux OS on a Windows host using virtualization. Which virtualization approach allows this without altering the Linux kernel?
A) Full Virtualization using VMware Workstation
B) Paravirtualization using Xen
C) OS-level virtualization using Docker
D) Emulation using QEMU without hardware acceleration
- 3 A company subscribes to Microsoft 365 for its employees' email and collaboration needs. The same platform also serves many other companies at the same time, with resources being dynamically allocated based on demand. Which cloud computing characteristic best explains this scenario?
A) On-demand self-service
B) Resource pooling through multitenancy
C) Broad network access
D) Measured service
- 4 A research team needs to run high-performance simulations and wants to lease servers with custom specifications such as processor type, RAM, and storage. They will install their own operating system and applications. Which cloud delivery model should they choose?
A) SAAS
B) IAAS
C) PAAS
D) DAAS
- 5 A small startup wants to launch its services but has limited funds. Instead of purchasing servers and software licenses, it decides to use AWS infrastructure and pay monthly based on usage. Which economic driver of cloud computing is being applied here?
A) Depreciation avoidance
B) Subscription-based licensing
C) Pay-as-you-go with reduced capital expenditure
D) High maintenance reduction

- 6 Which ring in the given architecture is responsible for running the Virtual Machine Monitor (VMM)?



- A. Ring 0
B. Ring 1
C. Ring 2
D. Ring 3

- 7 A business needs to connect Salesforce CRM with its ERP system using cloud middleware. Which service fits the requirement?

- A) Testing as a Service
B) Integration as a Service
C) Database as a Service
D) Storage as a Service

- 8 A company repeatedly faces server overload during peak hours. After analysis, the cloud team concludes that automatic scaling rules are insufficient. What should be improved first?

- A) Testing as a Service
B) Capacity Planning
C) Database as a Service
D) Process as a Service

- 9 A developer wants to test a new application without affecting the production environment. Which cloud computing feature would best support this scenario?

- A) Load balancing
B) Sandbox environment
C) Auto-scaling
D) Replication

- 10 A developer notices that an application works on Windows but fails on Linux due to differences in system API calls. After integrating PAL, the issue is resolved. What is the most likely reason?

- A) PAL automatically detects hardware configurations
B) PAL provides platform-independent access to underlying system APIs
C) PAL enhances network bandwidth
D) PAL increases computation power for cross-platform tasks

- 11 A developer wants to deploy a virtual machine with a preconfigured OS and software stack. Which AWS component should they use?

- A) S3 Bucket
B) EC2 Instance
C) Amazon Machine Image (AMI)
D) Cloud Watch

- 12 A geoscience department needs to process daily satellite images (hundreds of GB). Which cloud layer helps them run image-processing tasks?

- A) SaaS layer (user visualization only)
B) IaaS only
C) PaaS layer (Aneka managing processing tasks)
D) DNS services

Q2. Solve the following.

- A) What is Virtualization? Difference Between Full Virtualization & Host base Virtualization? 6
- B) Discuss the architecture of Hyper-V. Discuss its use in cloud computing? 6

- Q3. Solve the following.
- A) What are the main cloud service models you can choose from when using a cloud service provider? Explain any two ? 6
 - B) Describe the fundamental features of the economic and business model behind cloud computing? 6
- Q4. Solve Any Two of the following.
- A) Explain Storage as a Service (STaaS) with a suitable enterprise example. Discuss its advantages and limitations? 6
 - B) Propose a TaaS strategy for a development team that is launching a new mobile app. What testing phases would you implement, and why? 6
 - C) Explain the concept of capacity planning & cloud scale in scaling a cloud infrastructure? 6
- Q5. Solve Any Two of the following.
- A) Provide examples of Fabric Services provided by Aneka. How do these services support cloud applications.? 6
 - B) Draw & Explain Aneka framework architecture? 6
 - C) Discuss the logical organization of Aneka Clouds? 6
- Q6. Solve Any Two of the following.
- A) Describe Amazon EC2 and its basic features? 6
 - B) What are Dropbox and iCloud? Which kinds of problems do they solve by using cloud technologies? 6
 - C) Describe how cloud computing technology can be applied to support remote ECG monitoring? 6

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