

VIVEKANAND COLLEGE, KOLHAPUR (Empowered Autonomous)
Department of BCA

NOTICE

Date: 09/09/2024.

All the students of B.C.A. III Division(A,B,C) are here by informed that, there is test of the subject **Cloud** on 12-09-2024 at 10:00 am to 11:00 am.

The test is of 20 marks based on UNIT-I.


Shri. V. B. Pujari
(HOD)

HEAD
DEPARTMENT OF B. C. A.
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)



SUBJECT: Surprise Test (Cloud Computing)

DATE:12/09/2024

SR.NO.	STUDENT NAME	SIGNATURE
1	Pratiksha S. Devadiga	<u>Pratiksha</u>
2	Sneha B. Vasudev	<u>Sneha</u>
3	Aditi A. Patil	<u>Aditi</u>
4	Sharavari V. Sarate	<u>S.V. Sarate</u>
5	Sanika Jambhale	<u>Sanika</u>
6	Deepati pati	<u>Deepati</u>
7	Ankita A. Kolamire	<u>A.A. Kolamire</u>
8	Trusha Gadgil	<u>Trusha</u>
9	Karrena S. Sarate	<u>Karrena</u>
10	laxmi pillai	<u>laxmi</u>
11	shubham Rajkumar Patil	<u>Shubham</u>
12	sharavan Kailas Sonawate	<u>Sharavan</u>
13	Sujal Vhalake	<u>Sujal</u>
14	payal Ajit shete	<u>Payal</u>
15	Tushar Abhishek gadhav	<u>Tushar</u>
16	Aniket A. More	<u>Aniket</u>
17	shubham Sawant	<u>Shubham</u>
18	Irfan A. Mulla	<u>Irfan</u>
19	pooja Baburao kambale	<u>Pooja</u>
20	Nirga yageesh chougale	<u>Nirga</u>
21	Rohini Sunil Daddekar	<u>Rohini</u>
22	Atharv Dilip Atyalkar	<u>Atharv</u>
23	Atharv Nankishor Bhosale	<u>Atharv</u>
24	Rohit Ramesh chougale	<u>R.R.C</u>
25	Yash Sanelip Hasam	<u>Yash</u>
26	Akash Babasa Chougale	<u>Akash</u>
27	Gourav Sachin chandane	<u>Gourav</u>
28	Karan Keishnat Chougale	<u>Karan</u>
29	Hardik Dayanand Ghatoge	<u>H. Ghatoge</u>
30	Hyder Sultan Desai	<u>H.S. Desai</u>



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1. What is cloud Computing explain with It's Type?
2. Explain The Architecture of cloud Computing in Details?
3. ROOTS of Cloud Computing?
4. Short Note] Features of clode Computing?
 - 2] Pass as the Service provider?
 - 3] Chalages of Cloud Computing?

Q1 cloud Computing is the Techonolgy that enable user to access and use computing resourse such as service, storage, database, software and artifical. It is the use to storing and managing data. to access the Internet.

The following is the type of Cloud Computing

- 1] Private Cloud
- 2] Pubice Cloud
- 3] Hybrid Cloud

1] Private Cloud : private cloude are dirtributed system that work on private infrastructure and provid the users with dynamic provisioning of computing resoutse. Instead of a pay-as-you-go module in private Cloude, there could be other Schemes that manages the Use- age of the Clod and proportionally billing of The different Department or Section.

Examples: VM Ware, vcloud suite, openstack.

- 2] public cloud: public clouds are managed by third parties which provide cloud service over the internet to the public, these services are available on pay-as-you-go billing models. A user requires a virtual computing environment that is separated, and most likely isolated, from other users.

Examples: Amazon EC2, IBM, Azure

- 3] Hybrid cloud: Hybrid cloud is a heterogeneous distributed system formed by combining facilities of public cloud and private cloud. For this reason, they were also called heterogeneous clouds.

Here public clouds are needed. Hence, a hybrid cloud takes advantage of both public and private clouds.

Example: Azure Stack, IBM Cloud Satellite

Q2] Architecture of Cloud Computing

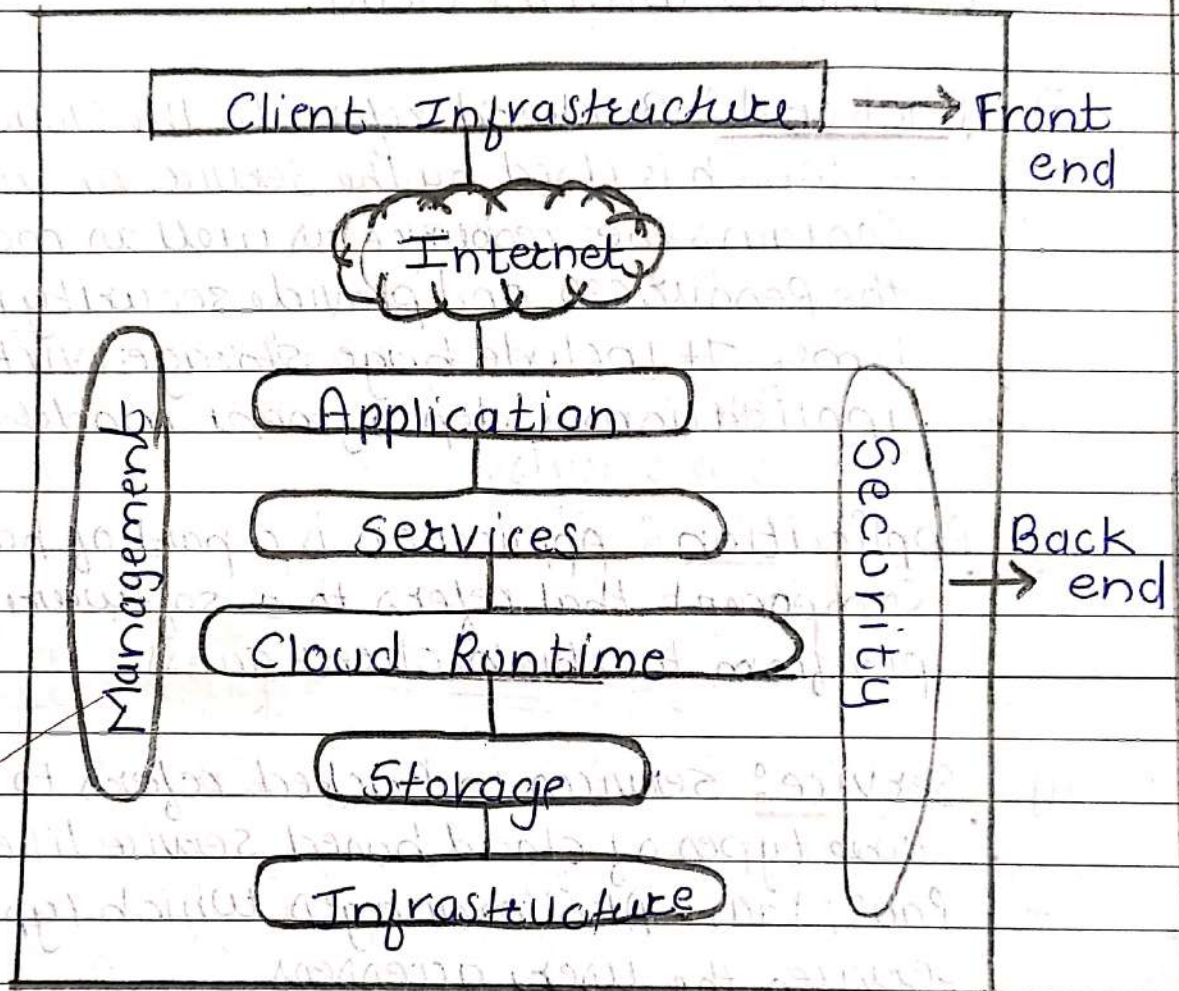
Architecture of cloud computing is the combination of both SOA (Service oriented Architecture) and EDA (Event Driven Architecture). Client infrastructure, application, service, runtime cloud, storage, management and security all

these are the components of cloud computing architecture.

The cloud computing architecture is divided into 2 parts,

- ① Frontend
- ② Backend

The above figure is an internal architectural view of cloud computing:



- ① Frontend: Frontend of the Cloud architecture refers to the Client side of Cloud computing system. Means it contains all the interfaces and applications which are used by the client to access the cloud computing services.

For example, use of a web browser to access the cloud platform.

i) Client Infrastructure: Client Infrastructure is a part of the fronted component. It contains the applications and User interface which are required to access the cloud platform. It provides GUI (Graphical User Interface) to interact with the cloud.

② Backend: Backend refers to the cloud itself which is used by the service provider. It contains the resource as well as manages the resources and provides security mechanisms. It includes huge storage, virtual applications, deployment models etc.

i) Application: Application is a part of the backend component that refers to a software or platform to which clients access.

ii) Service: Services in Backend refers to the major three types of cloud based service like SaaS, PaaS, IaaS. Also manages which type of services the user accesses.

iii) Runtime cloud: Runtime cloud in backend provides the execution and runtime platform environment to the virtual machine.

- iv) Storage : Storage in backend provides Flexible and Scalable Storage service and management of stored data.
- v) Infrastructure : cloud infrastructure in backend refers to the hardware and software components of cloud like it includes services, storage, network device, etc.
- vi) Management : Management in backend refers to management of backend component like application, service, runtime, cloud storage and other security.
- vii) Security : Security in backend refers to implementing for different security and all other types of security machines backups.
- viii) Managerne Internet : Internet connectant act as the medium or a bridge between frontend and backend and established the interactioning.

Q3.

The First Internet Technology : The First Roots of Cloud Computing ; which contains Service-oriented architecture (SOA), web 2.0 and web service.

people can access the content and run application their depend on the network connection.

Information Technology Companies basically provide this kind of service in which people can use the service on the common platform.

For examples of WEB 2.0 services are how services like Google Maps, like Twitter.

2] Second Root : Distributed Computing

The second Root is Distributed Computing from the cloud computing which contain grids, utility computing and cluster. The company using the technology will never face a problem and will always stay in competing with the other companies.

3] Third Root : Hardware

The third Root of Cloud Computing is Hardware which contain multi-core chips and virtualized. When we talk about hardware for cloud computing. It is usually virtual, and people do not need to buy it. Generally computing required hardware such as CPU, RAM, ROM, and Motherboard to process, stored etc.

It make easier and cheaper for customers to use cloud service.

4] Fourth Root : System Management

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The Fourth Root of Cloud Computing (System Management) contains data Centre automation and automatic computing. System management handles the operations to improve the productivity and efficiency of the system. This makes possible for the

Q4

1] Features of Cloud Computing :

- 1] On-demand self-services : The Cloud Computing is the demand services of management. The cloud demands does not require any human administrator, user themselves are able to provision, monitor
- 2] Broad network access : The computing service are generally provide over standard network and heterogeneous device.
- 3] Rapid elasticity : The computing service have its resource, that are able to scale out in quickly.
- 02 4] Resource pooling :

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- Q.1] What is cloud computing? Explain its types?
Q.2] Explain architecture of cloud computing in detail.
Q.3] Describe roots of cloud computing.
Q.4] Short notes -
1] features of cloud computing.
2] PaaS as a service provider
3] challenges of cloud computing

Q.1] cloud computing -

cloud computing is on-demand delivery of IT resources over the internet with pay-as-you-go pricing.

Types of cloud computing :-

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① Public cloud computing →

public cloud computing is a shared for environment where multiple users or client can access data as per their need.

eg - AWS, Google cloud, MS Azure etc.

- Key features →
- 1] shared infrastructure
 - 2] more flexible & scalable
 - 3] minimal setup & easy maintenance for user
 - 4] cost effective (pay-as-per-use)

• Disadvantage -

- 1] Less data privacy & security
- 2] might not suitable for sensitive & critical workload.

(S.2]

② Pubt: Private cloud computing -

Private cloud computing is dedicated for environment only for one organization that provide control & privacy.

• Key feature →

- 1] more security & privacy
- 2] more control & customization.
- 3] Ideal for organization with strict data regulation.

• Disadvantage →

- 1] Higher setup & maintenance for users.
- 2] Require in-house IT expertise.

③ Hybrid cloud computing -

Hybrid cloud computing is a combination of Public & private cloud computing.

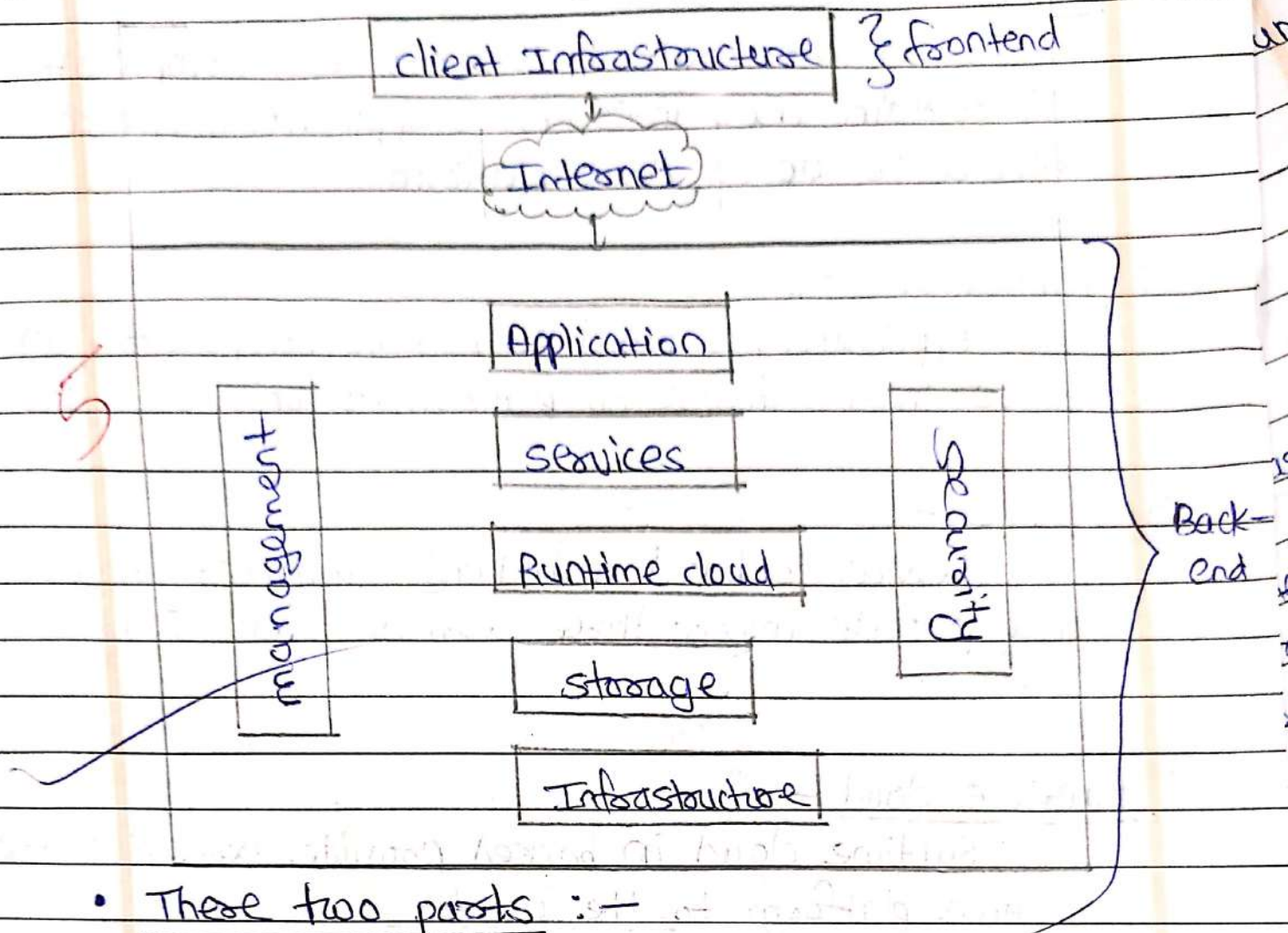
• Key feature →

- 1] data & apps can move between public & private environment.

• Disadvantage →

- 1] complex to manage and integrate.

3.2] Architecture of cloud computing:-



• These two parts :-

① Frontend :-

Frontend cloud architecture refers to client side cloud computing. It contains user interface and application which users can access according to their need.

② Backend :-

Backend refers to cloud itself which is used by the services / resources. It contains the resources & provide security mechanism along with this it includes huge storage, virtual machine, virtual application.

• Component of architecture -

1) client infrastructure -

client infrastructure is a frontend component. It contains user interface & application which require to access cloud platform.

2) Application -

Application is based on backend component. It refers to a software or platform to which client access.

3) Service -

Service is based on backend component where they provide major three services SaaS, PaaS and IaaS.

4) Runtime cloud -

Runtime cloud is backend provide execution or runtime platform to the client.

5) Storage -

Storage in backend can provide flexible & scalable storage to the client.

6) Infrastructure -

Infrastructure in backend refers to the software & hardware components of cloud like it includes servers, storage, networking devices, virtualization software etc.

7] management :-

management in backend refers to backend component like application, service, runtime cloud, storage, infrastructure & other security mechanism etc.

8] security :-

security in backend refers to implementation of different security mechanisms in the backend for secure cloud resources, systems, fields to end users.

9] Internet :-

Internet connection act as machine medium between frontend and backend.

Q.3] Roots of cloud computing :-① System management -

- System management is also known as automatic computing.
- User does not interface with system management.
- If there is any problem in system, then system handle it automatically like automatic update, balancing load etc.
- This idea help cloud system to become more flexible and fast.

② Distributed computing -

- In distributed computing multiple computers are come together to provide services to the client according to their need.

- Instead of big one expensive machine, many small ones can share work.

• These are two types →

1] Grid computing -

- Grid computing splits bigger task into smaller task.
- & In grid computing multiple computers from many locations are linked together to solve one big problem.

2] Utility computing -

- It introduces the idea of on-demand services just like a computing.
- In this computing user can pay only for as much resources they use that means 'pay as per use'.

③ Internet Technology -

- Internet can be made it possible to access data from any location.
- cloud computing uses internet as a backbone to deliver services online.
- Internet technology is based on SOA (Service oriented Architecture).

④ Hardware Virtualization -

- Normally, one operating system can run on one machine.
- virtualization lets you run as many 'virtual machines' on only one real machine.
- This saves space, power & cost.

1] Features of cloud computing -

① Resource Pooling -

- cloud service provider can store resources among multiple client, according to their need.
- users don't need to know the exact physical location of cloud, they are located on different data centers.

② On-demand self service -

- users can automatically provision resources without human interaction.
- on-demand self service is a fundamental feature of cloud computing.
- It control client computer services as per client requirement.

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③ Easy maintenance -

- cloud computing is maintained by cloud service provide.
- Automatic update, regular backup, security & quick fixes reduces downtime maintenance for user.
- users always work on the latest version of cloud computing without manual installation.

④ Scalability & Rapid elasticity -

- In cloud computing resources can scale up and scale down according to user or client demand.

- The elasticity supports sudden traffic spikes & high workload without affecting performance.

⑤ Cost effective —

- There is need not invest expensive hardware & infrastructure.
- Users have to pay only how much they can use resources, not need to pay additional.

⑥ Security —

- cloud computing includes security like
 - Data encryption
 - firewall & intrusion detector
 - Identity & access management (IAM)
- cloud service make copy & store data to prevent any type of data loss.

⑦ Resilience —

- It can ~~cover~~ recover data if there is any loss.
- It can recover disaster recovery plan, data backup.

⑧ Large network access —

- User can access cloud services from any location with fast network connection.

