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**Cloud Computing**  
**Assignment- Week 7**  
**TYPE OF QUESTION: MSQ**

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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**QUESTION 1:**

Fog Computing implements in

- a. Smart Grid
- b. Start Traffic Light
- c. Connected Vehicles
- d. None of the above

**Correct Answer: a, b, c**

**Detailed Solution:**

Fog computing implements in Smart Grid, Start Traffic light, Connected Vehicles. So, correct options are (a), (b), and (c).

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**QUESTION 2:**

What is/are TRUE about Mobile Cloud Computing(MCC)?

- a. MCC should increase the mobile's battery lifetime by reducing power consumption
- b. MCC should optimize the cost of network usage and server usage
- c. MCC should take longer time to finish the application compared to local execution
- d. MCC should not bother about the security of data while offloading it to server

**Correct Answer: a, b**

**Detailed Solution:**

MCC must reduce energy usage and extend battery life. It should not take longer to finish the application compared to local execution. Cost of network usage and server usage must be optimized. As offloading transfers data to the servers, MCC ensure confidentiality and privacy of data, how to identify methods which process confidential data. So, the options (a) and (b) are true about MCC.



### **QUESTION 3:**

Identify the correct statement(s) about Cloudlet?

- a. It increases latency by using multi-hop network
- b. It consumes low battery power
- c. It uses broadband wireless
- d. It uses short-range radio wireless

**Correct Answer: b, d**

#### **Detailed Solution:**

Cloudlet architecture decreases latency by using a single-hop network and potentially lowers battery consumption by using Wi-Fi or short-range radio instead of broadband wireless which typically consumes more energy. So, the correct options are (b) and (d).

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### **QUESTION 4:**

Which of the followings is/are feature(s) of Mobile Cloud Computing?

- a. Use less mobile device resources because applications are cloud-supported
- b. Reduce reliability with information backed up and stored in the cloud
- c. Mobile devices connect to services delivered through an API architecture
- d. Facilitates slower development, delivery and management of mobile apps

**Correct Answer: a, c**

#### **Detailed Solution:**

Mobile cloud computing features are: Facilitates the quick development, delivery and management of mobile apps. Uses fewer device resources because applications are cloud-supported. Mobile devices connect to services delivered through an API architecture. Improves reliability with information backed up and stored in the cloud. So, the correct options are (a) and (c).



**QUESTION 5:**

Match the following tables related to MCC Key components:

Table – I	Table – II
1. Profiler	i. Collects results of split execution and combine, and make the execution details transparent to the user
2. Solver	ii. Monitors application execution to collect data about execution time, power consumption, network traffic
3. Synchronizer	iii. The task of selecting which parts of an app runs on mobile and cloud

- a. 1. -> (ii), 2. -> (iii), 3. -> (i)
- b. 1. -> (iii), 2. -> (i), 3. -> (ii)
- c. 1. -> (i), 2. -> (ii), 3. -> (iii)
- d. 1. -> (ii), 2. -> (i), 3. -> (iii)

**Correct Answer: a**

**Detailed Solution:**

Profiler monitors application execution to collect data about the time to execute, power consumption, network traffic. Solver has the task of selecting which parts of an app runs on mobile and cloud. Task of synchronizer modules is to collect results of split execution and combine, and make the execution details transparent to the user. So, the correct option is (a).

**QUESTION 6:**

\_\_\_\_\_ ensures the ability to exchange / obtain the information to be “consumed”.

- a. Data Level Interoperability
- b. Security Level Interoperability
- c. Service Level Interoperability
- d. None of the above

**Correct Answer: c**

**Detailed Solution:**

Service Level Interoperability ensures the ability to exchange / obtain the information to be “consumed”. So, the correct option is (c).



**QUESTION 7:**

Which of the following statement(s) is/are FALSE about Fog Computing?

- a. Fog nodes present near to the end-user
- b. Fog computing use for real-time applications
- c. Fog nodes' response time is much higher than cloud server
- d. Network routers, WiFi Gateways will not be capable of running applications

**Correct Answer: c, d**

**Detailed Solution:**

Fog nodes present near to the end-user, Fog computing use for real-time applications, Fog nodes' response time is much lower than cloud server, network routers, WiFi Gateways will be capable of running applications. So, the correct options are (c), (d).

**QUESTION 8:**

State Migration happens when

- a. Migrate the partially processed persistent data to a new node due to availability of an executing node
- b. Migrate the partially processed persistent data to a new node due to unavailability of an executing node
- c. Migrate the fully processed persistent data to a new node due to unavailability of an executing node
- d. Migrate the fully processed persistent data to a new node due to availability of an executing node

**Correct Answer: b**

**Detailed Solution:**

State Migration happens due to unavailability of an executing node, there is a need to migrate the partially processed persistent data to a new node. So, the correct options are (b).



**QUESTION 9:**

Geographical distribution of server nodes is \_\_\_\_\_ in Fog Computing and \_\_\_\_\_ in Cloud Computing.

- a. Centralized, Distributed
- b. Centralized, Centralized
- c. Distributed, Centralized
- d. Distributed, Distributed

**Correct Answer: c**

**Detailed Solution:**

Geographical distribution of server nodes is Distributed in Fog Computing, and Centralized in Cloud Computing. So, the correct option is (c).

---

**QUESTION 10:**

Which of the following is/are the challenge(s) of Geospatial Cloud?

- a. Scaling of Spatial Databases
- b. Policy management among the tenants
- c. Implementation of Spatial Databases
- d. None of the above

**Correct Answer: a, b, c**

**Detailed Solution:**

Challenges of Geospatial Cloud are as follows-

1. Implementation of Spatial Databases
2. Scaling of Spatial Databases
3. Policy management among the tenants

So, correct options are (a), (b), (c).

\*\*\*\*\*END\*\*\*\*\*



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**Cloud Computing**  
**Assignment- Week 2**  
**TYPE OF QUESTION: MSQ**

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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**QUESTION 1:**

Which of the following is/are example(s) of public cloud?

- a. Amazon VPC
- b. Google App Engine
- c. Eucalyptus
- d. Microsoft Azure

**Correct Answer: b, d**

**Detailed Solution: Google App Engine and Microsoft Azure are examples of public cloud. So, the correct options are (b) and (d).**

---

**QUESTION 2:**

Statement 1: A hybrid cloud is composed of two or more private, community, or public clouds.

Statement 2: Hybrid clouds have significant variations in performance, reliability, and security properties depending upon the type of cloud chosen to build the hybrid cloud.

Which of the following is correct?

- a. Statement 1 is true and Statement 2 is false
- b. Statement 1 is false and Statement 2 is true
- c. Both Statement 1 and Statement 2 are true
- d. Both Statement 1 and Statement 2 are false

**Correct Answer: c**

**Detailed Solution: Both Statement 1 and Statement 2 are true. So, the correct option is (c).**

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**QUESTION 3:**

Which of the following creates a virtual machine?

- a. Host Operating System
- b. Hypervisor
- c. Container
- d. None of these

**Correct Answer: b**

**Detailed Solution: A hypervisor creates a virtual machine. So, the correct option is (b).**

---

**QUESTION 4:**

Bare-metal hypervisors can run directly on the host's hardware to control the hardware and to manage guest operating systems.

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution: Native or Bare-metal hypervisors can run directly on the host's hardware to control the hardware and to manage guest operating systems. So, the correct option is (a).**

---

**QUESTION 5:**

XML was designed to display data - with focus on how data looks.

- a. True
- b. False

**Correct Answer: b**

**Detailed Solution: HTML was designed to display data - with focus on how data looks. XML was designed to carry data - with focus on what data is. So, the correct option is (b).**

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**QUESTION 6:**

What is/are true regarding naming rules of XML elements?

- a. Element names are not case-sensitive
- b. Element names must start with a letter or underscore
- c. Element names cannot contain spaces
- d. Element names cannot contain hyphens

**Correct Answer: b, c**

**Detailed Solution:** Element names are case-sensitive. Element names must start with a letter or underscore. Element names cannot contain spaces. Element names can contain hyphens. So, the correct options are (b) and (c).

---

**QUESTION 7:**

SAX operates on the documents as whole, DOM parsers operate on each piece of the XML document sequentially.

- a. True
- b. False

**Correct Answer: b**

**Detailed Solution:** DOM operates on the documents as whole, SAX parsers operate on each piece of the XML document sequentially. So, the correct option is (b).

---

**QUESTION 8:**

Simple Object Access Protocol (SOAP) provides a way to communicate between applications running on different operating systems, with different technologies and programming languages.

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution:** Simple Object Access Protocol (SOAP) provides a way to communicate

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between applications running on different operating systems, with different technologies and programming languages. So, the correct option is (a).

**QUESTION 9:**

Service-oriented architecture (SOA) is a style of software design where services are provided to the other components by application components, through a communication protocol over a network.

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution:** Service-oriented architecture (SOA) is a style of software design where services are provided to the other components by application components, through a communication protocol over a network. So, the correct option is (a).

**QUESTION 10:**

Statement 1: Web Services Description Language (WSDL) is an XML-based registry for business internet services.

Statement 2: Universal Description, Discovery, and Integration (UDDI) is a data interchange format to store and transmit data objects consisting of attribute-value pairs.

Which of the following is correct?

- a. Statement 1 is true and Statement 2 is false
- b. Statement 1 is false and Statement 2 is true
- c. Both Statement 1 and Statement 2 are true
- d. Both Statement 1 and Statement 2 are false

**Correct Answer: d**

**Detailed Solution:** Universal Description, Discovery, and Integration (UDDI) is an XML-based registry for business internet services. JavaScript Object Notation (JSON) is a data interchange format to store and transmit data objects consisting of attribute-value pairs. So, the correct option is (d).



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**Cloud Computing**  
**Assignment- Week 5**  
**TYPE OF QUESTION: MSQ**

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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**QUESTION 1:**

--- is a formal contract between a service provider and a service consumer.

- a. SLA
- b. SLO
- c. KPI
- d. Utility Premium

**Correct Answer: a**

**Detailed Solution: SLA is a formal contract between a service provider and a service consumer. So, the correct option is (a).**

---

**QUESTION 2:**

$U > P/A$  indicates that cloud is costlier than owning computer infrastructures. Where U is Utility Premium, P is Peak Demand, and A is Average Demand

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution: When  $U > P/A$ , the cloud is costlier than owning computer infrastructures. So, the correct option is (a).**

---

**QUESTION 3:**

Consider the peak computing demand for an organization is 110 units. The demand as a function of time can be expressed as:  $D(t) = 3t$ ,  $0 \leq t < 100$

The resource provisioned by the cloud to satisfy current demand at time t is given as:  $R(t) = D(t) + \delta \cdot (dD(t)/dt)$

where,  $\delta$  is the delay in provisioning the extra computing recourse on demand



The cost to provision unit cloud resource for unit time is 0.8 units.

[Assume the delay in provisioning is 4 time units and minimum demand is 0.

(Penalty: Either pay for unused resource or missing service delivery)]

Penalty is

- a. 1100 units
- b. 1200 units
- c. 1300 units
- d. None of these

**Correct Answer: b**

**Detailed Solution:**  $R[0,100] = \int_0^{100} 0.100 D(t) dt + \delta \int_0^{100} d/dt (D(t)) dt = ((3/2)*t^2) 0.100 + \delta * 3 * \int_0^{100} dt = 15000 + (\delta * 300)$   
 $= (15000 + 300*4)$  [As  $\delta = 4$ ]  
 $= 16200$

$D[0,100] = \int_0^{100} 0.100 3t dt = 15000$

$|R-D| = 1200$

So, the correct option is (b).

---

#### **QUESTION 4:**

A third party application runs in the cloud for 15 hours/day. At the end of one month [30 days], it was found that the cloud service suffered 7 outages of durations: 1 hour 30 minutes, 30 minutes, 1 hour 15 minutes, 45 minutes, 2 hours, 1 hour, and H hours, each on different days over the service period.

Suppose a cloud guarantees service availability for 97% of time.

What will be the possible value(s) of H that SLA negotiation gets honored in terms of service availability?

- a. 8 hours
- b. 6 hours
- c. 3 hours
- d. 9 hours

**Correct Answer: b, c**

**Detailed Solution: Total Outage: (7+H) hours., Application runs in a month: 450**



hours. Availability:  $[1 - \{(7+H)/(443-H)\}] \geq 0.97, H \leq 6.10$   
So, the correct options are (b) and (c).

---

**QUESTION 5:**

Which of the following is/are correct?

- a. SLA contains SLO
- b. SLO contains SLA
- c. Multiple SLAs are aggregated to KPI
- d. KPIs are aggregated to SLO

**Correct Answer: a, d**

**Detailed Solution: SLA contains SLO. KPIs are aggregated to SLO. So, the correct options are (a) and (d).**

---

**QUESTION 6:**

---- is determining when an activity should start or end, depending on its duration, predecessor activities etc.

- a. Resource estimation
- b. Resource brokering
- c. Resource scheduling
- d. None of the above

**Correct Answer: c**

**Detailed Solution: Resource scheduling is determining when an activity should start or end, depending on its duration, predecessor activities etc. So, the correct option is (c).**

---

**QUESTION 7:**

Which of the following is/are not a possible parameter of service level agreement (SLA) in cloud?

- a. Response Time or Latency
- b. Availability of the Services
- c. Electricity Cost
- d. Warranty of the Services

**Correct Answer: c, d**



---

**Detailed Solution: Electricity Cost and Warranty of the Services are not a possible parameter of service level agreement (SLA) in cloud. So, the correct options are (c) and (d).**

**QUESTION 8:**

When load increases, VM management can be done by

- a. Schedule new VMs to new nodes
- b. Shutdown unused nodes
- c. All of these
- d. None of these

**Correct Answer: a**

**Detailed Solution: When load increases, VM management can be done by – a) Schedule new VMs to new nodes. So, the correct option is (a).**

---

**QUESTION 9:**

In hadoop, which of the following stores metadata?

- a. Data node
- b. Name node
- c. Client node
- d. None of these

**Correct Answer: b**

**Detailed Solution: In hadoop, name node stores metadata. So, the correct option is (b).**

---

**QUESTION 10:**

In the context of Green Cloud Computing, the DC Server Energy Model is contributed by

- a. CPU
- b. Memory modules
- c. Disks
- d. None of these

**Correct Answer: a, b, c**

**Detailed Solution: In the context of Green Cloud Computing, the DC Server Energy Model is contributed by CPU, memory modules and disks. So, the correct options are (a), (b) and (c).**

\*\*\*\*\*END\*\*\*\*\*



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**Cloud Computing**  
**Assignment- Week 8**  
**TYPE OF QUESTION: MSQ**

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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**QUESTION 1:**

Each container can not run as an isolated process in user space.

- a. True
- b. False

**Correct Answer: b**

**Detailed Solution:** Each container can run as an isolated process in user space. So, the correct option is (b).

---

**QUESTION 2:**

--- runs completely isolated from the host environment by default, only accessing host files and ports if configured to do so.

- a. Image
- b. Container
- c. Compose
- d. None of these

**Correct Answer: b**

**Detailed Solution:** Container runs completely isolated from the host environment by default, only accessing host files and ports if configured to do so. So, the correct option is (b).

---

**QUESTION 3:**

--- is a lightweight, stand-alone, executable package that includes everything needed to run a piece of software, including the code, a runtime, libraries, environment variables etc.



- a. Container
- b. Hypervisor
- c. Image
- d. None of these

**Correct Answer: c**

**Detailed Solution:** Image is a lightweight, stand-alone, executable package that includes everything needed to run a piece of software, including the code, a runtime, libraries, environment variables etc.

So, the correct option is (c).

---

**QUESTION 4:**

Docker engine is a tool for defining and running multi-container Docker applications.

- a. True
- b. False

**Correct Answer: b**

**Detailed Solution:** Docker compose is a tool for defining and running multi-container Docker applications. So, the correct option is (b).

---

**QUESTION 5:**

Docker rmi is used to delete a local ----

- a. image
- b. container
- c. volume
- d. node

**Correct Answer: a**

**Detailed Solution:** Docker rmi is used to delete a local image. So, the correct option is (a).

---

**QUESTION 6:**

--- get virtual access to host resources through a hypervisor.

- a. Containers



- b. Virtual machines
- c. Both a and b
- d. Images

**Correct Answer: b**

**Detailed Solution:** Virtual machines get virtual access to host resources through a hypervisor. So, the correct option is (b).

---

**QUESTION 7:**

A docker image can be created from a docker container.

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution:** A docker image can be created from a docker container. So, the correct option is (a).

---

**QUESTION 8:**

A green broker can perform scheduling of applications to reduce energy consumption.

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution:** A green broker can perform scheduling of applications to reduce energy consumption. So, the correct option is (a).

---

**QUESTION 9:**

In the context of Green Cloud Computing, the Power Usage Effectiveness is defined as

- a. Power Delivered / Overall Power
- b. Overall Power / Power Delivered
- c. Overall Power \* Power Delivered
- d. None of these

**Correct Answer: b**





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**Detailed Solution: In the context of Green Cloud Computing, the Power Usage Effectiveness is defined as Overall Power / Power Delivered. So, the correct option is (b).**

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**QUESTION 10:**

For sensor resources that do not have direct connection to the cloud, sensor network proxy provides the connection.

- a. True
- b. False

**Correct Answer: a**

**Detailed Solution: For sensor resources that do not have direct connection to the cloud, sensor network proxy provides the connection. So, the correct option is (a).**

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\*\*\*\*\*END\*\*\*\*\*



## Cloud Computing

### Assignment- Week 6

TYPE OF QUESTION: MCQ/MSQ  
[One or more options may be correct]

Number of questions: 10

Total mark: 10 X 1 = 10

#### QUESTION 1:

I.      Replay	(A) Prevents the normal use of communication facilities.
II.     Denial of service	(B) Passive capture of a data unit and its subsequent retransmission to produce an unauthorized effect.
III.    Modification	(C) Some portion of a legitimate message is altered.
IV.    Masquerade	(D) One entity pretends to be a different entity.

- (a) I-A, II-C, III-B, IV-D
- (b) I-C, II-A, III-B, IV-D
- (c) I-B, II-A, III-C, IV-D
- (d) I-D, II-B, III-A, IV-C

**Correct Answer: c**

**Solution:** Active attacks involve some modification of the data stream or the creation of a false stream. These four are the four categories of active attacks. Refer slide no. 16 of Cloud-Security I.

#### QUESTION 2:

Which of the following is/ are the goal(s) of security?

- (a) Detect attackers' violation of security policy
- (b) Continue to function correctly even if attack succeeds
- (c) Stop attack, assess and repair damage
- (d) None of the above

**Correct Answer: a, b, c**

**Solution:** Refer slide no. 8 of Cloud-Security I.



---

**QUESTION 3:**

**Statement I:** Release of message contents means that the opponent can determine the location and identity of communicating hosts, and observe the frequency and length of messages being exchanged

**Statement II:** Traffic analysis is desirable to prevent the opponent from learning the contents of the transmission.

Which of the options are correct?

- (a) Statement I is TRUE and Statement II is FALSE
- (b) Statement II is TRUE and Statement I is FALSE
- (c) Both are TRUE
- (d) Both are FALSE

**Correct Answer: d**

**Solution:** These are the types of passive attacks. Release of message contents:- It may be desirable to prevent the opponent from learning the contents of the transmission. Traffic analysis:- The opponent can determine the location and identity of communicating hosts, and observe the frequency and length of messages being exchanged.

---

**QUESTION 4:**

Modification security attack is an attack on Integrity

- (a) TRUE
- (b) FALSE

**Correct Answer: a**

**Solution:** Modification security attack is attack on integrity.

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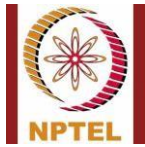
**QUESTION 5:**

Which of the following are the Gartner's seven cloud computing risks?

- (a) Regulatory Compliance & Audit
- (b) Data Location
- (c) Data Segregation
- (d) Short-term Viability

**Correct Answer: a, b, c**

**Solution:** Refer slide no. 10 of Cloud-Security II.



---

**QUESTION 6:**

Recovery Time Objective (RTO) represents:

- (a) The maximum amount of data that will be lost following an interruption or disaster.
- (b) The period of time allowed for recovery
- (c) The period of time allowed for the complete execution
- (d) The maximum period of time allowed for the compilation of the programme

**Correct Answer: b**

**Solution:** *Recovery Time Objective (RTO): The period of time allowed for recovery i.e., the time that is allowed to elapse between the disaster and the activation of the secondary site.*

---

**QUESTION 7:**

In which situation it is better to switch cloud providers?

- (a) Contract price decrease
- (b) Provider bankruptcy
- (c) Provider service shutdown
- (d) Business dispute

**Correct Answer: b, c, d**

**Solution:** *Refer slide no. 17 of Cloud-Security II.*

---

**QUESTION 8:**

In full-virtualization, VMs run on hypervisor that interacts with the hardware

- a) True
- b) False

**Correct Answer: a**

**Solution:** Full virtualization: VMs run on hypervisor that interacts with the hardware, and Para virtualization: VMs interact with the host OS.

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**QUESTION 9:**

Choose the option(s) which is/are not a passive attack?

- a) Traffic Analysis
- b) Release of message contents
- c) Denial of service
- d) Replay

**Correct Answer: c, d**

**Solution:** A passive attack is a network attack in which a system is monitored and sometimes scanned for open ports and vulnerabilities. The purpose is solely to gain information about the target and no data is changed on the target.

---

**QUESTION 10:**

Reliability and Efficiency are basic components of security

- (a) TRUE
- (b) FALSE

**Correct Answer: b**

**Solution:** *Confidentiality (Keeping data and resources hidden), Integrity and Availability (Enabling access to data and resources) are the major components of security.*

\*\*\*\*\*END\*\*\*\*\*



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## **Cloud Computing**

### **Assignment- Week 3**

**TYPE OF QUESTION: MCQ/MSQ**  
*[One or more options may be correct]*

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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#### **QUESTION 1:**

Which of the following OpenStack component is used for networking services?

- (a) Swift
- (b) Keystone
- (c) Neutron
- (d) Cinder

**Correct Answer: c**

**Detailed Solution:** *Neutron is used for networking services in OpenStack.*

---

#### **QUESTION 2:**

Which of the following system/ architecture follow(s) Quorum protocol for a large number of concurrent reads & writes?

- (a) Google File System (GFS)
- (b) BigTable
- (c) Dynamo
- (d) None of the above

**Correct Answer: c**

**Detailed Solution:** *Dynamo follows Quorum protocol for a large number of concurrent reads & writes.*

---

**QUESTION 3:**

**S1:** In ephemeral storage, the stored objects persist until the VM is terminated.

**S2:** The ephemeral storage is managed by Cinder in OpenStack.

- (a) S1 is TRUE, S2 is FALSE
- (b) S2 is TRUE, S1 is FALSE
- (c) Both are TRUE
- (d) Both are FALSE

**Correct Answer: a**

**Detailed Solution:** *Ephemeral storage is managed by NOVA in OpenStack.*

---

**QUESTION 4:**

In cloud, total service uptime is 185 minutes and availability of the service is 0.75. What is the downtime of the service?

- (a) 25.8 minutes
- (b) 46.25 minutes
- (c) 24 minutes
- (d) None of the above

**Correct Answer: b**

**Detailed Solution:** *Availability = 1 - (downtime/uptime).*

$$\text{downtime} = 185 \times (1 - 0.75) = 46.25$$

---

**QUESTION 5:**

Column-oriented storage is efficient for data-warehouse workloads.

- (a) TRUE
- (b) FALSE

**Correct Answer: a**

**Detailed Solution:** *From the definition of data storage techniques. (Slide no. 6 of Cloud Computing: Managing Data)*

---

**QUESTION 6:**

What is/are the SLA requirement(s) for PaaS cloud delivery model?

- (a) Data Retention and Deletion
- (b) Hardware Erasure and Destruction
- (c) Transparency
- (d) Privacy

**Correct Answer: c, d**

**Detailed Solution:** *Refer the table provided in the slide no 17 of Service Level Agreement (SLA) Lecture (Source: Cloud Computing Use Cases White Paper" Version 4.0)*

---

**QUESTION 7:**

What is the parallel efficiency (Eff) of an algorithm? Where a task takes time T in uniprocessor system, P is number of processors, M is time taken by each processor.

- (a)  $\text{Eff} = (T \cdot P) / M$
- (b)  $\text{Eff} = T \cdot (M / P)$
- (c)  $\text{Eff} = T / (P \cdot M)$
- (d)  $\text{Eff} = T \cdot P \cdot M$

**Correct Answer: c**

**Detailed Solution:**  $\text{Eff} = T / (P \cdot M)$  is the parallel efficiency(Eff) of an algorithm.

---

**QUESTION 8:**

What is/ are the expected SLA parameters in Storage-as-a-Service?

- (a) Geographic Location
- (b) Fault tolerance



(c) Customizability

(d) Response time

**Correct Answer: a, b**

**Detailed Solution:** *Expected SLA parameters: Geographic location, scalability, storage space, storage billing, security, privacy, backup, fault tolerance/resilience, recovery, system throughput, transferring bandwidth, data life cycle management*

---

**QUESTION 9:**

In a system, 2500 unit workloads have been added. What will be the penalty?

(a) 25

(b) 100

(c) 50

(d) 2499

**Correct Answer: c**

**Detailed Solution:** *Adding  $n$  independent demands reduces the  $C_v$  by  $1/\sqrt{n}$  which in turn results penalty to  $1/\sqrt{n}$ .*

---

**QUESTION 10:**

When utility premium is greater than the ratio of peak demand to Average demand, then the cloud is cheaper than owning.

(a) TRUE

(b) FALSE

**Correct Answer: b**

**Detailed Solution:** *When utility premium is less than ratio of peak demand to Average demand, the cloud is cheaper than owning.*

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\*\*\*\*\*END\*\*\*\*\*



**Cloud Computing**  
**Assignment- Week 1**  
**TYPE OF QUESTION: MSQ**

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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**QUESTION 1:**

Which of the following is/are common characteristic(s) of Cloud Computing?

- a. Resilient Computing
- b. Small Scale
- c. Virtualization
- d. High Cost Software

**Correct Answer: a, c**

**Detailed Solution:**

The common characteristics of cloud computing are Massive Scale, Resilient Computing, Homogeneity, Geographic Distribution, Virtualization, Service Orientation, Low Cost Software, Advanced Security. So, the correct options are (a) and (c).

Refer slide number 50.

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**QUESTION 2:**

Which of the followings is/are type(s) of Cluster?

- (a) Load Balancing Cluster
- (b) Cost Effective Cluster
- (c) Failover Cluster
- (d) Energy Efficient Cluster

**Correct Answer: a, c**

**Detailed Solution:**

There are three types of cluster: High Availability or Failover Clusters, Load Balancing Cluster, and Parallel/Distributed Processing Clusters. So, option (a) and (c) are correct.

Refer slide number 31.



**QUESTION 3:**

Identify the TRUE statement(s)

- a. Google spread sheet is an example of PaaS
- b. Amazon Web Services(AWS) is an example of IaaS
- c. Google Cloud Platform(GCP) is an example of public cloud
- d. Window Server 'Hyper-V' is an example of community cloud

**Correct Answer: b, c**

**Detailed Solution:**

Google spread sheet is an example of SaaS. Amazon Web Services(AWS) is an example of IaaS. Google Cloud Platform(GCP) is an example of public cloud. Window Server 'Hyper-V' is an example of private cloud. So, the correct options are (b) and (c).  
Refer slide number 54.

**QUESTION 4:**

**Statement 1:** Unlimited storage capacity is one of the advantages of Cloud Computing

**Statement 2:** Requirement of a constant internet connection is one of the disadvantages of Cloud Computing

- a. Statement 1 is TRUE, Statement 2 is FALSE
- b. Statement 2 is TRUE, Statement 1 is FALSE
- c. Both statements are TRUE
- d. Both statements are FALSE

**Correct Answer: c**

**Detailed Solution:**

Both statements are TRUE. So, the correct option is (c).

Refer slide number 63 for statement 1, and slide number 66 for statement 2



**QUESTION 5:**

Advantage(s) of virtual machines is/are

- a. Migration of virtual machines is not easy
- b. Emulate more machines than are physically available
- c. Timeshare heavy loaded systems on one host
- d. Easier to create new machines, and backup machines

**Correct Answer: b, d**

**Detailed Solution:**

Advantages of virtual machines are easier to create new machines, backup machines, timeshare lightly loaded systems on one host, emulate more machines than are physically available, easy migration of virtual machines. So, the correct options are (b) and (d).

Refer slide number 57.

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**QUESTION 6:**

In the context of "networking in cloud models", which of the following statement(s) is/are TRUE for IaaS model?

- a. Physical layer is accessed by service provider
- b. Data link layer is accessed by service consumer
- c. Network layer is accessed by service provider
- d. Application layer is accessed by service consumer

**Correct Answer: a, d**

**Detailed Solution:**

Physical and Data link layers are accessed by service provider. Network, Transport, Session, Presentation, and Application layers are accessed by service consumer in case of IaaS cloud model. So, correct options are (a) and (d).

Refer slide number 131



**QUESTION 7:**

Which of the following is/are benefit(s) for user to use of public cloud?

- a. No separate hardware procurement
- b. No separate IT infrastructure maintenance required
- c. Low scalability
- d. Required separate power cost

**Correct Answer: a, b**

**Detailed Solution:**

**Benefits for user to use public cloud are high scalability, no separate hardware procurement, no separate power cost, no separate IT infrastructure administration/maintenance required. So, option (a) and (b) are true.**

**Refer slide number 73**

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**QUESTION 8:**

Utility computing is a service provisioning model where -

- a. Computing resources not available to the customer when required
- b. Infrastructure management available to the customer when required
- c. Service provider charges customer with a flat rate
- d. Service provider charges customer with specific usage rate

**Correct Answer: b, d**

**Detailed Solution:**

**Utility computing is a service provisioning model in which a service provider makes computing resources and infrastructure management available to the customer as needed, and charges them for specific usage rather than a flat rate. So, the correct options are (b) and (d).**

**Refer slide number 35.**



**QUESTION 9:**

The \_\_\_\_\_ cloud scales automatically to successfully handle increased requests to the web application.

- a. SaaS
- b. PaaS
- c. IaaS
- d. DaaS

**Correct Answer: b**

**Detailed Solution:**

**The PaaS cloud scales automatically to successfully handle increased requests to the web application. So, the correct option is (b).**

**Refer slide number 77**

**QUESTION 10:**

Match the tables

Table – I	Table - II
1. Data Grid	i. Provides fault-tolerant and high performance communication services
2. Network Grid	ii. Provides secure access to huge pool of shared processing power
3. Computational Grid	iii. Provides an infrastructure to support data storage, data discovery, data handling, data publication

- a. 1.->(ii), 2.->(i), 3.->(iii)
- b. 1.-> (iii), 2.->(ii), 3.->(i)
- c. 1.->(ii), 2.->(iii), 3.->(i)
- d. 1.->(iii), 2.->(i), 3.->(ii)

**Correct Answer: d**

**Detailed Solution:**

**Data Grid provides an infrastructure to support data storage, data discovery, data handling, data publication. Network Grid provides fault-tolerant and high performance communication services. Computational Grid provides secure access to huge pool of shared processing power. So, the correct option is (d).**

**Refer slide no. 25-26**

\*\*\*\*\*END\*\*\*\*\*



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**Cloud Computing**  
**Assignment- Week 4**  
**TYPE OF QUESTION: MSQ**

**Number of questions: 10**

**Total mark: 10 X 1 = 10**

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**QUESTION 1:**

The configuration of a1.large instance in Amazon Web Service(AWS) is

- (a) 1 vCPU and 2048 MB RAM
- (b) 2 vCPUs and 4096 MB RAM
- (c) 4 vCPUs and 8192 MB RAM
- (d) 8 vCPUs and 16382 MB RAM

**Correct Answer: b**

**Detailed Solution:**

The combination of vCPUs and RAM in a1.large instance of AWS is 2 vCPUs and 4096 MB (or 4 GB). So, correct option is (b).

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**QUESTION 2:**

**Statement 1:** Google App Engine is an Infrastructure as a Service (IaaS) product of GCP

**Statement 2:** Google Compute Engine is a Platform as a Service (PaaS) component of GCP

- (a) Statement 1 is True and Statement 2 is False
- (b) Statement 1 is False and Statement 2 is True
- (c) Both statements are True
- (d) Both statements are False

**Correct Answer: d**

**Detailed Solution:**

Google App Engine is Platform as a Service (PaaS) product. Google Compute Engine is an Infrastructure as a Service (IaaS) product. So, both statements are False. Correct option is (d).



### **QUESTION 3:**

**Statement 1:** Fixed IP address of OpenStack VM is used for communication between instances

**Statement 2:** Floating IP address of OpenStack VM is used for communication with networks outside the cloud, including the Internet.

- (a) Statement 1 is True and Statement 2 is False
- (b) Statement 1 is False and Statement 2 is True
- (c) Both statements are True
- (d) Both statements are False

**Correct Answer: c**

**Detailed Solution:**

**Fixed IP address of OpenStack VM is used for communication between instances and Floating IP address of OpenStack VM is used for communication with networks outside the cloud, including the Internet. So, both statements are true. Correct option is (c).**

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### **QUESTION 4:**

Identify the correct statement(s) about Google Cloud Platform(GCP) storage

- (a) Cloud SQL is Google's fully managed, petabyte scale, low cost analytics data warehouse to find meaningful insights
- (b) BigQuery maintains, manages, and administers relational databases on Google Cloud Platform
- (c) MySQL or NoSQL databases present in Google DataStore
- (d) Cloud Storage provides flexible object storage with global edge caching

**Correct Answer: c, d**

**Detailed Solution:**

**Cloud SQL maintains, manages, and administers relational databases on Google Cloud Platform. BigQuery is Google's fully managed, petabyte scale, low cost analytics data warehouse to find meaningful insights. You get MySQL or NoSQL databases in Google DataStore. Cloud Storage provides flexible object storage with global edge caching. So, the correct options are (c), and (d).**





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**QUESTION 5:**

A user deploys his/her app remotely in Azure. At the time of deployment, system asks for password. Which password S/he will enter?

- (a) S/he enters the login password of Azure account while it asks for password
- (b) S/he enters the deployment user password of Azure account while it asks for password
- (c) S/he enters the Gmail password while it asks for password
- (d) S/he enters the online banking password while it asks for password

**Correct Answer: b**

**Detailed Solution:**

**Push to the Azure remote to deploy your app. You are prompted for the password you created earlier when you created the deployment user. Make sure that you enter the password you created in Configure a deployment user, not the password you use to log in to the Azure portal. So, the correct option is (b).**

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**QUESTION 6:**

Azure App Service supports to deploy content to a web app through FTP, local Git, GitHub, Visual Studio Team Services, and Bitbucket.

- (a) TRUE
- (b) FALSE

**Correct Answer: a**

**Detailed Solution:**

**App Service supports several ways to deploy content to a web app, such as FTP, local Git, GitHub, Visual Studio Team Services, and Bitbucket. So, the question statement is TRUE. Correct option is (a).**



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**QUESTION 7:**

Microsoft Azure App service plan includes

- (a) Scale Count
- (b) Region
- (c) Instance Size
- (d) Stock Keeping Unit (SKU)

**Correct Answer: a, b, c, d**

**Detailed Solution:**

**App Service plans define: Region (for example: North Europe, East US, or Southeast Asia), Instance size (small, medium, or large), Scale count (1 to 20 instances), SKU (Free, Shared, Basic, Standard, or Premium). So, all options are correct.**

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**QUESTION 8:**

What core function(s) do(es) Keystone perform?

- (a) Networking
- (b) Compute
- (c) Storage
- (d) Authentication and Identity service

**Correct Answer: d**

**Detailed Solution:**

**Keystone is an OpenStack service that provides API client authentication, service discovery, and distributed multi-tenant authorization by implementing OpenStack's Identity API. So, the correct option is (d).**



**QUESTION 9:**

Which of the following statements are TRUE about Resource Group in Microsoft Azure?

- (a) It manages Azure resources
- (b) It is a physical container
- (c) It deploys web apps, databases, and storage accounts
- (d) None of the above

**Correct Answer: a, c**

**Detailed Solution:**

A resource group is a logical container into which Azure resources like web apps, databases, and storage accounts are deployed and managed. Correct options are (a), and (c).

**QUESTION 10:**

Match the following columns:

Column 1	Column 2
A. GoogleAppEngine B. GoogleCloudEndpoint C. GoogleAPI	1. Helps end users' application scalability 2. Integrates Google's services into end users' application 3. Considers to migrate your web application to Google Cloud Platform

- (a) A-1, B-2, C-3
- (b) A-2, B-3, C-1
- (c) A-3, B-1, C-2
- (d) A-2, B-1, C-3

**Correct Answer: c**

**Detailed Solution:**

GoogleAppEngine considers to migrate your web application to Google Cloud Platform. GoogleCloudEndpoints help end users' application scalability. GoogleAPIs integrate Google's services into end users' application. So, correct option is (c).