NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

Cloud Computing

Assignment-Week 1

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

A distributed system is preferred when the task is: i)Data-intensive; ii)Computing-intensive

A. Only (i)
B. Only (ii)
C. Both (i) and (ii)
D. Neither (i) nor (ii)

Correct Answer: C

Detailed Solution: A distributed system is preferred when the task is both data and computing-intensive

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QUESTION 2:

The "Grid" in the distributed grid computing paradigm links together power plants of different kinds.

A. True
B. False

Correct Answer: B

Detailed Solution: The grid in distributed grid computing paradigm links together computing resources and provides the mechanism needed to access them.

QUESTION 3:

Which one of the following is/are the advantage(s) of cloud computing?

A. Resource pooling
B. It requires an always-on internet connection.
C. Ubiquitous
D. On-demand payment policy

Correct Answer: A, C, D

Detailed Solution: Cloud computing brings resource pooling, ensures ubiquitousness and provides an on-demand payment policy.

QUESTION 4:

The distributed system ensures ‘robustness’ of performance.

A. True
B. False

Correct Answer: A

Detailed Solution: The distributed system ensures ‘robustness’ of performance. No Single point of failure.

QUESTION 5:

What is(are) the characteristic(s) of using cluster computing?

A. Parallel programming
B. Faster network than a typical LAN
C. Low-latency communication protocols
D. None of these.

Correct Answer: A,B, C

Detailed Solution: Clusters are deployed to improve the speed over LAN-connected single standalone computers. Its key components are parallel programming and ensuring Low-latency communication protocols.

QUESTION 6:

Web access to commercial software is one of the SaaS (Software as a Service) characteristics in the cloud computing paradigm.

A. True
B. False

Correct Answer: A

Detailed Solution: Web access to commercial software is one of the SaaS characteristics in the cloud computing paradigm.

QUESTION 7:

Example(s) of PaaS (Platform as a Service) tool(s) is(are):

A. Microsoft Powerpoint
B. Microsoft Azure
C. Google App Engine
D. Google mail service

Correct Answer: B, C

Detailed Solution: Examples of PaaS tools are Microsoft Azure and Google app engine.

QUESTION 8:

IaaS (Infrastructure as a Service) in cloud computing delivers (i) storage; (ii) servers.

A. Only (i)
B. Only (ii)
C. Both (i) and (ii)
D. Neither (i) nor (ii)

Correct Answer: C

Detailed Solution: IaaS is a computing platform that allows developers to quickly create software or online applications by delivering storage, servers, networks, OSs and on-demand service.

QUESTION 9:

IaaS (Infrastructure as a Service) is the best option where regulatory compliance makes the offshoring or outsourcing of data storage and processing difficult

A. True
B. False

Correct Answer: B

Detailed Solution: IaaS may not be the best option where regulatory compliance makes the offshoring or outsourcing of data storage and processing difficult

QUESTION 10:

What is/are the main requirement(s) of a Cloud Service Provider (CSP)?

A. Increase agility
B. Increase cost
C. Increase productivity
D. Decrease cost

Correct Answer: A,C

Detailed Solution: CSP looks forward to enhancing productivity and agility.

Cloud Computing

Assignment-Week 2

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Example(s) of Public cloud is(are)

A. Eucalyptus
B. Ubuntu Enterprise Cloud (UEC)
C. Microsoft ECI data centre
D. Amazon EC2

Correct Option: D

Detailed Answer: Amazon EC2 is a Public cloud.

QUESTION 2:

Which of the following is/are XML parser API(s)?

A. XaaS (Anything as a Model)
B. SAX (Simple API to XML)
C. CLI (Command Line Interface)
D. DOM (Document Object Model)

Correct Option: B, D

Detailed Answer: DOM and SAX are two of the three generic parser APIs. They read XML data, check for syntax, and make data available to an application.

QUESTION 3:

The public cloud provides total visibility and control over data regarding security.

A. True
B. False

Correct Option: B

Detailed Answer: Public cloud provides limited visibility and control over data regarding security. Say, subscribers cannot verify that data has been completely detected from the provider's systems.

QUESTION 4:

In the case of on-site private cloud, organizations consider (i) network dependency; (ii) no risk from multi-tenancy.

A. Only (i)
B. Only (ii)
C. Both (i) and (ii)
D. Neither (i) nor (ii)

Correct Option: A

Detailed Answer: The risk of multi-tenancy is there is an on-site private cloud as workloads of different clients may reside concurrently on the same systems and local networks, separated only by access policies implemented by a cloud provider's software. Network dependency is also considered.

QUESTION 5:

_____is an XML language for processing XML.

A. Javascript
B. ECMA script
C. CSS
D. XSLT

Correct Option: D

Detailed Answer: XSLT(eXtensible Stylesheet Language) is an XML language for processing XML.

QUESTION 6:

Cloud Manager is the public access point to the cloud where subscribers sign up for accounts.

A. True
B. False

Correct Option: A

Detailed Answer: Cloud Manager is the public access point to the cloud where subscribers sign up for accounts and has a mechanism for authenticating subscribers.

QUESTION 7:

_____ generally stores the cloud subscriber's metadata like user credentials and OS images.

A. SLA (Service Level Agreement)
B. Cloud Manager
C. DOS (Data Object storage)
D. MOS (Metadata Object storage)

Correct Option: C

Detailed Answer: DOS generally stores the cloud subscriber's metadata like user credentials and OS images.

QUESTION 8:

Which of these is responsible for the operation of a collection of computers that are connected via high speed local area networks in the cloud computing paradigm?

A. Cloud Manager
B. Computer Manager
C. Cluster Manager
D. None of these.

Correct Option: C

Detailed Answer: The cluster Manager is responsible for the operation of a collection of computers that are connected via high-speed local area networks in the cloud computing paradigm.

QUESTION 9:

Hypervisor is also known as

A. Cluster Manager
B. Virtual Machine Handler
C. Virtual Machine Manager
D. Virtual Machine Monitor

Correct Option: D

Detailed Answer: The hypervisor is also known as Virtual Machine Monitor

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QUESTION 10:

The following problems are addressed through Web services:

A. Firewall
B. Interoperability
C. Storage
D. Speed

Correct Option: A,B

Detailed Answer: Web services improve distributed interoperability by using open standards that can enable any two software components to communicate. It is also intended to take care of firewall issues.

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Assignment-Week 3

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Which of the following is/are properties of Web Service SLAs?

A. SLA automation is required for negotiation, provisioning, service delivery and monitoring.

B. The QoS parameters are response time, SLA violation rate for reliability, availability and cost of service.

C. UDDI (Universal Description Discovery and Integration) is used for resource allocation.

D. The QoS parameters are related to security, privacy, trust, management, etc.

Correct Option: B, C

Detailed Answer: In Web SLA automation is not required. The QoS parameters are response time, SLA violation rate for reliability, availability and cost of service and UDDI (Universal Description Discovery and Integration) is used for resource allocation.

QUESTION 2:

A task takes time T in a uniprocessor system. In a parallel implementation, the task runs on P processors parallelly. The parallel efficiency is Eff, where $0<Eff<1$. What is the time taken by each processor (M) in this implementation?

A. $M = T$

B. $M = T/(Eff \times P)$

C. $M = T/P$

D. $M = (T \times Eff)/P$

Correct Option: B

Detailed Answer: According to the question, parallel efficiency (Eff) is less than 1. Therefore, the time taken by each processor will be greater than the ideal T/P, and $M = T/(Eff \times P)$.

QUESTION 3:

Row-oriented storage is optimal for transaction processing applications.

A. True

B. False

Correct Option: A

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

QUESTION 4:

Which of the following is/are the SLA requirement(s) for PaaS cloud delivery model?.

A. Transparency

B. Data Retention and Deletion

C. Privacy

D. Regulatory compliance

Correct Option: A, C, D

Detailed Answer: Refer to the table provided in slide no. 17 of Service Level Agreement (SLA) Lecture.

QUESTION 5:

In a cloud, total service uptime is 175 minutes and availability of the service is 0.85. What is the service downtime?

A. 55 minutes

B. 148.75 minutes

C. 26.25 minutes

D. 45 minutes

Correct Option: C

Detailed Answer: Availability = 1 – (downtime/uptime).

Downtime = Uptime×(1-Availability) = 175*(1-0.85) = 26.25 minutes.

QUESTION 6:

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

A. BigTable

B. Dynamo

C. Datastore

D. Google File System (GFS)

Correct Option: B

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

QUESTION 7:

Match the components of OpenStack with their functions.

Table I	Table II
1. Neutron 2. Cinder 3. Keystone 4. Nova	A. Block storage B. Identity C. Compute D. Networking

A. 1->B, 2->D, 3->A, 4->C

B. 1->B, 2->A, 3->D, 4->C

C. 1->C, 2->B, 3->D, 4->A

D. 1->D, 2->A, 3->B, 4->C

Correct Option: D

Detailed Answer: Neutron is used for networking, Cinder is used for block storage, Keystone is used for identity and Nova is used for compute service.

QUESTION 8:

Let D(t) and R(t) be the instantaneous demand and resources at time t respectively. If demand is exponential ($D(t)=e^t$), any fixed provisioning interval (*tp*) according to the current demands will fall linearly behind.

A. TRUE
B. FALSE

Correct Option: B

Detailed Answer: If demand is exponential ($D(t)=e^t$), any fixed provisioning interval (*tp*) according to the current demands will fall exponentially behind.

QUESTION 9:

Which of the following statement(s) regarding OpenStack storage is/are wrong?

A. Object storage is managed by Cinder
B. Both ephemeral storage and block storage are accessible from within VM
C. Block storage persists until VM is terminated
D. Ephemeral storage is used to run operating system and/or scratch space

Correct Option: A, C

Detailed Answer: Object storage is managed by Swift. Block storage persists until specifically deleted by the user. Thus, statements A and C are false.

QUESTION 10:

Statement 1: Multiple KPIs are aggregated to SLA.

Statement 2: SLA contains SLO.

A. Both statement 1 and 2 are correct
B. Statement 1 is correct and statement 2 is incorrect
C. Statement 2 is correct and statement 1 is incorrect
D. Both statement 1 and 2 are incorrect

Correct Option: C

Detailed Answer: Multiple KPIs are aggregated to SLO. SLA contains SLO. So statement 1 is incorrect and statement 2 is correct.

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Cloud Computing

Assignment-Week 4

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Azure app service plans define:

A. Instance size

B. Security

C. Region

D. Scale count

Correct Option: A, C, D

Detailed Answer: Azure app service plan defines instance size, region, scale count and SKU (Stock-Keeping Unit). So the correct answers are A, C and D.

QUESTION 2:

In Azure, app service supports local Git to deploy content to a web app.

A. TRUE

B. FALSE

Correct Option: A

Detailed Answer: The statement is true. In Azure, app service supports local Git to deploy content to a web app.

QUESTION 3:

Which of the following statement(s) is/are FALSE for Microsoft Azure Resource Group?

A. It is a logical container

B. It manages Azure resources

C. It is a physical container

D. It deploys web apps, databases, and storage accounts

Correct Option: C

Detailed Answer: A resource group is a logical container into which Azure resources like web apps, databases, and storage accounts are deployed and managed. Hence, C is the only incorrect answer.

QUESTION 4:

Identify the correct statement(s) on Google App Engine.

A. It is a part of Google Cloud Platform (GCP) “services” infrastructure
B. It is a Platform as a Service (PaaS) component of GCP
C. While using Google App Engine patching and maintenance would be checked continuously
D. It is a part of Google Cloud Platform (GCP) “compute” infrastructure

Correct Option: B, D

Detailed Answer: Google App Service is a part of GCP compute infrastructure. It is a Platform as a Service (PaaS) component of GCP. Using App Engine, we can just focus on our code and do not need to worry about patching or maintenance. So the correct options are B and D.

QUESTION 5:

Google Cloud Datastore provides flexible object storage with global edge caching.

A. TRUE
B. FALSE

Correct Option: B

Detailed Answer: Google Cloud Storage, not Datastore provides flexible object storage with global edge caching. So the statement is false.

QUESTION 6:

Statement 1: In Microsoft Azure, a deployment user is required for FTP and local Git deployment to a web app.

Statement 2: When deploying the Azure app remotely, the login password of the Azure account needs to be entered when the system asks for password.

A. Statement 1 is True and Statement 2 is False
B. Statement 1 is False and Statement 2 is True
C. Both are True
D. Both are False

Correct Option: A

Detailed Answer: A deployment user is required for FTP and local Git deployment to a web app in Microsoft Azure. When deploying the Azure app remotely, the password created while configuring the deployment user should be used, not the password used to log in to the Azure portal. So the correct option is A.

QUESTION 7:

Match the following columns:

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

A. A-1, B-2, C-3
B. A-3, B-2, C-1
C. A-3, B-1, C-2
D. A-2, B-1, C-3

Correct Option: B

Detailed Answer: GoogleAppEngine helps to migrate web applications to Google Cloud Platform. GoogleCloudEndpoints help end users' application scalability. GoogleAPIs integrate Google's services into end users' applications. So, the correct option is B.

QUESTION 8:

While developing a web-app using Google App Engine, the development server should not be kept running when changes are made to the source file.

A. TRUE
B. FALSE

Correct Option: B

Detailed Answer: The development server can be kept running while the application is being developed in Google App Engine. The development server watches for changes in the source files and reloads them if necessary. Hence, the statement is false.

QUESTION 9:

Identify the correct statement(s) on OpenStack storage concepts:

A. Ephemeral storage is managed by Nova
B. Block storage is accessible from within VM as a local file system
C. Both Block storage and Object storage persist until specifically deleted by the user.
D. Object storage is used to add additional persistent storage to VM and/or run operating system.

Correct Option: A, C

Detailed Answer: Ephemeral storage is managed by Nova. Block storage is accessible from within VM as a block device (e.g. /dev/vdc). Both Block storage and Object storage persist until specifically deleted by the user. Object storage is used to add store files, including VM images. Hence A and C are correct.

QUESTION 10:

Which of the following is/are storage service(s) provided by Google Cloud Platform(GCP)?

A. BigQuery
B. Cloud SQL
C. Cloud Datastore
D. Cloud Endpoints

Correct Option: B, C

Detailed Answer: Cloud SQL and Cloud Datastore are the storage services mentioned here provided by GCP. Hence, B and C are correct.

Cloud Computing

Assignment-Week 5

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

____ is a formal contract between a Service Provider (SP) and a Service Consumer (SC).

A. SLA
B. KPI
C. SLO
D. Utility Premium

Correct Option: A

Detailed Answer: SLA (Service Level Agreement) is a formal contract between a Service Provider (SP) and a Service Consumer (SC) in slide 2 of SLA. So the correct option is A.

QUESTION 2:

If demand is exponential ($D(t)=e^t$), any fixed provisioning interval (*tp*) according to the current demands will fall linearly behind.

A. TRUE
B. FALSE

Correct Option: B

Detailed Answer: If demand is exponential ($D(t)=e^t$), any fixed provisioning interval (*tp*) according to the current demands will fall exponentially behind.

QUESTION 3:

A third party application runs in the cloud for 18 hours/day. At the end of one month (30 days), it was found that the cloud suffered outages totalling 5 hours and T hours, on different days over the service period. The cloud guarantees service availability for 98% of the time. What are the value(s) of T among the given options such that the SLA negotiation does not get honored in terms of service availability?

A. 4 hours
B. 5 hours
C. 6 hours
D. 8 hours

Correct Option: C, D

Detailed Answer: Total Outage: (5+T) hours, application runs for 540 hours in a month. Availability = 1 - (downtime/uptime). For availability: [1- {(5+T)/(535-T)}] >= 0.98, T<=5.59 hours. Options C and D are correct as the SLA negotiation **does not** get honored.

QUESTION 4:

What is/are the correct statement(s) regarding VM load management?

A. When load increases, new VMs should be scheduled to new nodes.
B. When load decreases, use WOL to start up waiting nodes.
C. When load increases, use WOL to start up waiting nodes.
D. When load decreases, live migrate VMs to more utilized nodes.

Correct Option: A, C, D

Detailed Answer: When load decreases, VMs should be live migrated to more utilized nodes. When load increases, WOL should be used to start up waiting nodes and new VMs should be scheduled to new nodes.

QUESTION 5:

Statement I: In resource management, resource allocation is the allocation of a service provider's resources to a customer.

Statement II: Resource mapping is correspondence between resources required by the users and resources available with the provider.

Which of the options is correct?

A. Statement I is TRUE and Statement II is FALSE
B. Statement II is TRUE and Statement I is FALSE
C. Both statements are TRUE

D. Both statements are FALSE

Correct Answer: B

Detailed Solution: Refer slide 10 in Resource Management - II. In resource management, resource allocation is the distribution of resources economically among competing groups of people or programs. Statement II is true. Hence, option B is correct.

QUESTION 6:

Which of the following is/are resource allocation approaches in resource management?

A. Intelligent multi-agent model
B. Network queueing model
C. Energy-aware resource allocation
D. Reinforcement learning guided control policy

Correct Answer: A, C

Detailed Solution: Intelligent multi-agent model and energy-aware resource allocation are resource allocation approaches. Network queueing model is a resource provisioning approach and reinforcement learning guided control policy is a resource adaptation approach..

QUESTION 7:

Consider that the peak computing demand for an organization is 250 units. The demand as a function of time can be expressed as D(t) = 5t. Baseline (owned) unit cost is 120 and cloud unit cost is 150. The cloud is owned for a period of T time units. Select the values of T for which cloud is cheaper than owning.

A. 50
B. 100
C. 150
D. 200

Correct Option: A

Detailed Answer: Total baseline cost $B_T = P \times B \times T = 250*120*T = 30,000*T$ units.

Total cloud cost $C_T = \int_0^T C * D(t)dt = \int_0^T 150 * 5t\, dt = 750 * [\frac{t^2}{2}]_0^T = 375*(T^2)$ units

Utility function $U_T = (C_T/B_T) = 375*T^2/30{,}000*T = T/80$.

For T = 50 units, cloud is cheaper than owning. For all the other cases, cloud is costlier than owning.

QUESTION 8:

Which of the following is/are objective(s) of Resource Management?

A. Increased latency
B. Scalability
C. Improved throughput
D. Improved security

Correct Option: B, C

Detailed Answer: From the objectives outlined in slide 9 of Resource Management - II.

QUESTION 9:

In computing, there is a nonlinear relationship between the number of processing cores used and power consumption

A. TRUE
B. FALSE

Correct Option: A

Detailed Answer: Refer to slide 10 of resource management-I.

QUESTION 10:

If demand is flat, the penalty will be linear.

A. TRUE
B. FALSE

Correct Answer: B

Detailed Solution: If demand is flat, the penalty will be zero.

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Cloud Computing

Assignment-Week 6

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Interception is an attack on:

A. Integrity

B. Availability

C. Confidentiality

D. Authenticity

Correct Option: C

Detailed Answer: Interception is an attack on confidentiality.

QUESTION 2:

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

A. Stop attack, assess and repair damage

B. Detect attackers' violation of security policy

C. Prevent attackers from violating security policy

D. Continue to function correctly even if attack succeeds

Correct Option: A, D

Detailed Answer: Refer slide no. 8 of Cloud-Security I.

QUESTION 3:

Replay attack, which is the passive capture of a data unit and its subsequent retransmission to produce an unauthorized effect, is an active attack.

A. True

B. False

Correct Option: A

Detailed Answer: Replay attack is an active attack.

QUESTION 4:

Statement I: Authorization is the identification of legitimate users.

Statement II: Integrity is the protection against data alteration/corruption.

A. Statement I is TRUE and statement II is FALSE.
B. Statement I is FALSE and statement II is TRUE.
C. Both statements are TRUE.
D. Both statements are FALSE.

Correct Option: B

Detailed Answer: Refer slide no. 18 of Cloud-Security I. Authorization is the determination of whether or not an operation is allowed by a certain user. Integrity is the protection against data alteration/corruption. So the first statement is false and the second statement is true.

QUESTION 5:

Which of the following is/are NOT passive attacks?

A. Masquerade
B. Release of message contents
C. Denial of service
D. Modification

Correct Option: A, C, D

Detailed Answer: Only release of message contents is a passive attack. The others are active attacks.

QUESTION 6:

In full virtualization, VMs interact with the host OS.

A. True
B. False

Correct Option: B

Detailed Answer: In full virtualization, VMs run on hypervisor that interacts with the hardware.

QUESTION 7:

When selecting the most suitable cloud provider satisfying customer's QoS requirements using a fuzzy inference engine, if the "Degree of SLA Satisfaction" is greater than the "Threshold for a cloud service provider", the customer should migrate to a different provider.

A. True
B. False

Correct Option: B

Detailed Answer: Refer slide 16 of Broker for Cloud Marketplace. Migration should be done when Degree of SLA Satisfaction < Threshold.

QUESTION 8:

Which of the following Open-source tools is/are used to perform TCP connect probes in Amazon EC2 platform?

A. wget
B. nmap
C. ifconfig
D. hping

Correct Option: B

Detailed Answer: nmap is an open-source tool which is used to perform TCP connect probes (attempt to complete a 3-way hand-shake between a source and target) in Amazon EC2. refer to slide 12 of Cloud Security III.

QUESTION 9:

Statement I: Recovery Point Objective (RPO) is the maximum amount of data that will be lost following an interruption or disaster.

Statement II: Recovery Time Objective (RTO) is the amount of data that will be lost following an interruption or disaster.

A. Statement I is TRUE and statement II is FALSE.
B. Statement I is FALSE and statement II is TRUE.
C. Both statements are TRUE.
D. Both statements are FALSE.

Correct Option: A

Detailed Answer: Recovery Time Objective (RTO) is 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 10:

List the motivation(s) in having a ‘middle man’ or intelligent broker for cloud marketplace:

A. Trustworthiness of the provider.
B. Monitoring of services.
C. Ensuring vendor lock-in.
D. Flexible selection of cloud provider.

Correct Option: A, B, D

Detailed Answer: Refer slide 4 of Broker for Cloud Marketplace.

Cloud Computing

Assignment-Week 7

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Fog Computing is applicable in

a) Smart Grid
b) Smart Traffic Light
c) Connected Vehicles
d) None of the above

Correct Answer: a, b, c

Detailed Solution: Fog computing is implemented in Smart Grid, Start Traffic light, Connected Vehicles. So, the correct options are (a), (b), and (c).

QUESTION 2:

Fog Computing has _____ probability to attack on data enrouter and required _____ number of server nodes than Cloud Computing.

a) lower , less
b) lower, large
c) higher, less
d) higher, large

Correct Answer: b

Detailed Solution: Fog Computing has a lower probability to attack on data enrouter and required a large number of server nodes than Cloud Computing. Refer to Lecture 34.

QUESTION 3:

Consider the following statements:

Statement 1: In Geospatial Cloud, it is needed to integrate data from heterogeneous back-end data service.

Statement 2: Data services can be inside and/or outside of the cloud environment in Geospatial Cloud.

a. Statement 1 is Correct, but Statement 2 is Incorrect.
b. Statement 2 is Correct, but Statement 1 is Incorrect.
c. Both statements are Correct.
d. Both statements are Incorrect
Correct Answer: c

Detailed Solution: Both statements are correct regarding Geospatial Cloud concept. So, the correct option is (c). Refer to Lecture 35.

QUESTION 4:

Which of the following is/are the challenge(s) of the 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, the correct options are (a), (b), (c).

QUESTION 5:

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

a) Uses less mobile device resources because applications are cloud-supported
b) Reduces 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 6:

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

a) Fog nodes present near to the end-user
b) Fog computing enables real-time applications
c) Fog nodes' response time is much higher than Cloud's
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 7:

Choose the most appropriate option regarding CLOUDLET code offloading.

Statement 1: The architecture reduces latency by using a multi-hop network.

Statement 2: It potentially lowers battery consumption by using Wi-Fi or short range radio.

a. Statement 1 is correct but Statement 2 is incorrect
b. Statement 2 is correct but Statement 1 is incorrect
c. Both the statements are correct
d. Both the statements are incorrect.

Correct Answer: b

Detailed Solution: The architecture reduces latency by using a single-hop network and potentially lowers battery consumption by using Wi-Fi or short range radio. So, the correct option is (b). Refer Lecture 32.

QUESTION 8:

Benefits of Fog Computing is/are:

a. Immobility
b. Low latency and location-aware.
c. Homogeneity
d. Widespread geographical distribution.

Correct Answer: b, d
Detailed Solution: Benefits of Fog Computing are (i) Very large number of nodes are involved, (ii) Low latency and location-aware, (iii) Heterogeneity and (iv) Widespread geographical distribution. So, correct option is (b) and (d).

QUESTION 9:

Distance between the client and server in Cloud Computing is of _____ and Fog computing is _____.

a) One Hop, Multiple Hop
b) One Hop, One Hop
c) Multiple Hop, One Hop
d) Multiple Hop , Multiple Hop

Correct Answer: c
Detailed Solution: Distance between the client and server in Cloud Computing is of multiple hop and Fog computing is one hop. Refer Lecture 34.

QUESTION 10:

Match the following tables related to Mobile Cloud Computing key components:

Table – I Table – II

Table – I	Table – II
1. Profiler 2. Solver 3. Synchronizer	i. Collects results of split execution and combine, and make the execution details transparent to the user

	ii. Monitors application execution to collect data about execution time, power consumption, network traffic 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).

Cloud Computing

Assignment-Week 8

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

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). Lecture 38, 22:10 min.

QUESTION 2:

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

a) True

b) False

Correct Answer: a

Detailed Solution: Docker compose is a tool for defining and running multi-container Docker applications. So, the correct option is (a). Lecture 36, 18:17 min.

QUESTION 3:

What does "**ps**" signify as per Container terminology?

a) List of all containers
b) List of all running containers
c) List of all stopped containers
d) List of all warm containers

Correct Answer: b

Detailed Solution: ps : list all running containers

ps -a : list all containers (including stopped). Lecture 36, 29:58 min.

QUESTION 4:

Statement 1: Sensor-Cloud proxy exposes sensor resources as cloud services.

Statement 2: Sensor network is still managed from the Sensor-Cloud Interface via Sensor Network Proxy

a. Statement 1 is True and Statement 2 is False

b. Statement 2 is True and Statement 1 is False

c. Both statements are True

d. Both statements are False

Correct Answer: c

Detailed Solution: Sensor cloud proxy exposes sensor resources as cloud services.

Sensor network is still managed from the Sensor-Cloud

Interface via Sensor Network Proxy. Lecture 38, 21:43 min.- 22:09 min

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QUESTION 5:

Choose the most appropriate option.

Statement 1: An image is a lightweight, stand-alone, executable package that includes everything to run a piece of software.

Statement 2:Container is a run time instance of an image.

a. Statement 1 is correct but Statement 2 is incorrect
b. Statement 2 is correct but Statement 1 is incorrect
c. Both the statements are correct
d. Both the statements are incorrect.

Correct Answer: c

Detailed Solution: Both the statements are correct. Lecture 36, 20:51 min

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QUESTION 6:

Sensor data can be easily shared by different groups of users without any extra effort/ measure.

a. True

b. False

Correct Answer: b

Detailed Solution: One of the limitations of Sensor Networks is “Sensor data can not be easily shared by different groups of users.” Hence, the correct option is (b). Lecture 38, 9:32 min.

QUESTION 7:

An IoT platform’s basic building blocks is/ are (choose the correct option(s)).

a. Gateway

b. Images

c. Network and Cloud

d. Containers

Correct Answer: a, c

Detailed Solution: An IoT platform has three basic building blocks, Things, Gateway, and Network and Cloud. Lecture 39, 10:09 min.

QUESTION 8:

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 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

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). Lecture 37, 28:45 min.

QUESTION 10:

Vehicles providing their networking and data processing capabilities to other vehicles through the cloud come under which service of IoT-based Vehicular Data Clouds.

a. SaaS

b. PaaS

c. IaaS

d. None of these

Correct Answer: c

Detailed Solution: Vehicles provide their networking and data processing capabilities to other vehicles through the cloud comes under the Networking and Data processing as a service (IaaS) of IoT-based Vehicular Data Clouds under IaaS service. Hence, the correct option is (c). Lecture 39, 28:02 min.

Cloud Computing

Assignment-Week 9

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Fog computing is a model in which data, processing and applications are concentrated in devices at the _____ rather than existing almost entirely in the cloud.

a. fog
b. local node
c. network station
d. network edge

Correct Answer: d

Detailed Solution: Fog computing is a model in which data, processing and applications are concentrated in devices at the network edge rather than existing almost entirely in the cloud. So the option is (d).

QUESTION 2:

In the Cloud-Fog-Edge Computing paradigm, sensors being end devices, can perform basic data processing

a. True
b. False

Correct Answer: a

Detailed Solution: In the Cloud-Fog-Edge Computing paradigm, sensors being end devices, are able to perform basic data processing.

QUESTION 3:

What is(are) the benefit(s) of Fog computing?

a. Provides less data location-awareness
b. Increases network congestion
c. Causes lesser latency permits usage in real-time applications
d. None of these

Correct Answer: c

Detailed Solution: Fog always decreases latency permits in real-time applications.

QUESTION 4:

The _____ used for resource management in fog/edge computing are classified on the basis of data flow, control and tenancy.

a. Algorithms
b. Architectures
c. Hardware
d. Infrastructure

Correct Answer: b

Detailed Solution: The architectures used for resource management in fog/edge computing is classified based on data flow, control, and tenancy.

QUESTION 5:

Virtualization software is an example of _____.

a. Application software
b. Middleware
c. System software
d. Benchmarking

Correct Answer: c

Detailed Solution: Virtualization software is an example of System software.

QUESTION 6:

Fog infrastructure consists of IoT devices, Fog Nodes, and at least one Cloud Data Center never ensures scalability

a. True
b. False

Correct Answer: b

Detailed Solution: Scalability is one of the characteristics of fog computing.

QUESTION 7:

What is(are) the application placement constraint(s) for fog nodes?

a. Network constraints
b. Interoperability

c. Resource constraints
d. None of these

Correct Answer: a,c
Detailed Solution: Network constraints: such as latency, bandwidth, etc. and these constraints need to be considered when deploying applications.

Resource constraints: an infrastructure node is limited by finite capabilities in terms of CPU, RAM, storage, bandwidth, etc. While placing application(s) (service components), the resource requirements need to be considered.

QUESTION 8:

Cloud Federation should prefer maximum geographical separation.

a. True
b. False

Correct Answer: a
Detailed Solution: Cloud Federation should prefer maximum geographical separation.

QUESTION 9:

Benefit(s) of cloud federation is(are)

a. Global Utility
b. Resource utilization minimization
c. Power consumption maximization
d. All of these

Correct Answer: a
Detailed Solution: Benefits of cloud federation are: Maximize resource utilization; Minimize power consumption; Load balancing; Global utility; Expand CSP's global foot prints

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QUESTION 10:

A CSP has little or no control over remote resources in case of

a. Tightly Coupled Federation
b. Medium Coupled Federation
c. Loosely Coupled Federation
d. None of these

Correct Answer: c

Detailed Solution: In loosely coupled federation, a CSP has little or no control over remote resources (for example, decisions about VM placement are not allowed), monitoring information is limited (for example, only CPU, memory, or disk consumption of each VM is reported), and there is no support for advanced features such as cross‑site networks or VM migration.

Cloud Computing

Assignment-Week 10

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Post-copy and Pre-copy migration approaches are followed in :

a. Live Migration process
b. Non-live Migration process
c. Hybrid Migration process
d. None of these

Correct Answer: a

Detailed Solution: Both Post-copy and Pre-copy are approaches for the live migration process.

QUESTION 2:

Private Docker registry is a service that stores Docker images.

a. True
b. False

Correct Answer: a

Detailed Solution: Private Docker registry is a service that stores Docker images.
Moreover, Docker on the host machine is split into two parts- a daemon with RESTful API and a client who talks with the daemon.

QUESTION 3:

What is(are) the key advantage(s) of Docker?

a. Facilitating microservices
b. Modeling networks.
c. Packaging software
d. None of these

Correct Answer: a,b,c

Detailed Solution: Facilitating microservices, packaging software, and modeling networks for initiating multiple isolated containers on a single machine, are the key advantages of Docker.

QUESTION 4:

Which of the following statement is most appropriate about Docker ?

a. Docker is a platform that allows to build and run but not ship apps.

b. Docker is a platform that allows to build and ship but but not to run apps.

c. Docker is a platform that allows to build, ship and, run apps.

d. Docker is a platform that only allows to ship and run but not to build apps.

Correct Answer: c

Detailed Solution: Docker is a platform that allows to build, ship and, run any app anywhere.

QUESTION 5:

A Kubernetes cluster consists of set of worker machines , called _____ .

a. Pods
b. Nodes
c. Control plane
d. Centers

Correct Answer: b

Detailed Solution: A Kubernetes cluster consists of set of worker machines , called nodes.

QUESTION 6:

Docker builds are more reproducible and and replicable than traditional software building methods.

a. True
b. False

Correct Answer: a

Detailed Solution: Docker builds are more reproducible and and replicable than traditional software building methods. This makes implementing CD much easier.

QUESTION 7:

Containers are similar to VMs but they have unrelaxed isolation properties to share the operating system among the applications.

a. True
b. False

Correct Answer: b

Detailed Solution: Containers are similar to VMs but they have relaxed isolation properties to share operating system among the applications. Therefore, containers are considered lightweight.

QUESTION 8:

In Docker utility, _____ is a collection of filesystem layers and some metadata that, if taken together, can be spun up as Docker containers.

a. Operating System
b. Microservice
c. Virtual Machine
d. Image

Correct Answer: d

Detailed Solution: In Docker utility, an image is a collection of filesystem layers and some metadata which if taken together, they can be spun up as Docker containers.

QUESTION 9:

With VM memory size of 1024 GB and the transmission rate to be 16 MB/sec
What is the total migration time ? Choose the closest correct option.

a. 32 hours
b. 18 hours
c. 26 hours
d. 24 hours

Correct Answer: b

Detailed Solution: Total Migration time = VM memory size/ transmission rate =(1024x2^30)/(16x2^20)=65536 secs= 18 hours.

QUESTION 10:

Choose the most appropriate option.

Statement 1: Container is a lightweight virtualization technique.

Statement 2: Container contains the code and all its dependencies.

a. Only statement 1 is true
b. Only statement 2 is true
c. Both statement 1 and 2 are true
d. Bothe the statements are false

Correct Answer: c

Detailed Solution: Container is a lightweight virtualization technique. Container contains the code and all its dependecies so the applications run quickly.

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Cloud Computing

Assignment-Week 11

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

_____are an important distribution mechanism for libraries and custom runtimes in AWS serverless ecosystem.

a. Runtimes
b. Lambda Layers
c. Log streams
d. None of these

Correct Answer: b

Detailed Solution: Lambda layers are an important distribution mechanism for libraries, custom runtimes and other imp function dependencies in AWS serverless ecosystem. So, the correct option is (b).

QUESTION 2:

_____ is a fully managed proprietary NoSQL database service that supports key–value and document data structures.

a. Amazon DynamoDB
b. AWS S3
c. AWS Lambda
d. Amazon EFS

Correct Answer: a

Detailed Solution: Amazon DynamoDB is a fully managed proprietary NoSQL database service that supports key–value and document data structures and is offered by Amazon.com as part of the Amazon Web Services portfolio. Whereas, Amazon S3 is a simple storage service .

QUESTION 3:

Which component(s) of CDCs contribute(s) to consumption of huge amount of energy ?

a. Network

b. Storage
c. Memory
d. Cooling system

Correct Answer: a,b,c,d

Detailed Solution: All of these components mentioned are responsible for consumption of energy in CDCs.

QUESTION 4:

Serverless covers a wide range of technologies that can be grouped into two categories

a. BaaS and YaaS
b. FaaS and BaaS
c. FaaS and YaaS
d. None of these

Correct Answer: b

Detailed Solution: Serverless covers a wide range of technologies that can be grouped into two categories Faas and BaaS.

QUESTION 5:

Runtimes allows you to annotate your function code with custom logging statements which helps you to analyse the execution flow and performance of your AWS Lambda functions.

a. True
b. False

Correct Answer: b

Detailed Solution: Log stream allows you to annotate your function code with custom logging statements which helps you to analyse the execution flow and performance of your AWS Lambda functions. . So, the correct option is (b).

QUESTION 6:

Which of the following is not a category of a research initiative on sustainable cloud computing?

a. Renewable Energy

b. Capacity planning
c. Environment Sandboxing
d. None of these

Correct Answer: c
Detailed Solution: Environment Sandboxing is not a category of research initiative on sustainable cloud computing. The other two options are. So, the correct option is (c).

QUESTION 7:

VMs can be migrated to a remote CDC to balance the load effectively as per sustainable cloud computing model.

a. True
b. False

Correct Answer: a

Detailed Solution: VMs and workloads can be migrated to a remote CDC to balance the load effectively as per sustainable cloud computing model.

QUESTION 8:

The focus of cloud computing was _____ and the serverless is _____.

a. programmers, system administrators
b. system administrators, programmers

Correct Answer: b
Detailed Solution: The focus of cloud computing was system administrators and the serverless is programmers.

QUESTION 9:

In Google Cloud Functions, the code executes in a fully managed environment.

a. True
b. False

Correct Answer: a

Detailed Solution: In Google Cloud Function, the code executes in a fully managed environment. There is no need to provision any infrastructure.

QUESTION 10:

Which of the following is/are the goal of sustainable cloud computing? Choose appropriate

option(s).

a. Minimizing the energy consumption.
b. Increasing reliability of CDCs.
c. Maximizing carbon footprint related cost.
d. Increasing network traffic

Correct Answer: a,b

Detailed Solution: Focus on minimizing the energy consumption and carbon footprint and ensuring reliability of CDCs is the goal of sustainable cloud computing.

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Cloud Computing

Assignment-Week 12

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

What is the purpose of 5G wireless technology?

a. Deliver lower data speeds
b. Deliver higher data speeds
c. Decrease network capacity
d. Decrease availability

Answer: b

Detailed Solution: 5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users.

QUESTION 2:

What is the benefit of 5G's ability to scale down in data rates, power, and mobility for IoT devices?

a. It provides extremely lean and low-cost connectivity solutions
b. It allows for faster data rates and lower latency
c. It enables immersive experiences like VR and AR
d. It provides ultra-reliable, low-latency links for mission-critical communications.

Answer: a

Detailed Solution: 5G is meant to seamlessly connect a massive number of embedded sensors in virtually everything through the ability to scale down in data rates, power, and mobility—providing extremely lean and low-cost connectivity solutions

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QUESTION 3:

How are mobile devices connected to mobile networks in Mobile Cloud Computing?

a. Through cloud storage servers
b. Through remote access protocols
c. Through base stations such as base transceiver station, access point, or satellite

d. Through peer-to-peer connections

Answer: c

Detailed Solution: Mobile devices are connected to mobile networks via base stations (e.g., base transceiver station, access point, or satellite).

QUESTION 4:

What drives the need for heterogeneous and distributed computing architectures?

a. Resource-constrained low-latency devices
b. Distant cloud data centres
c. High-speed internet connections
d. Availability of low-cost computing devices

Answer: a

Detailed Solution: On-premises and edge data centers will continue to close the gap between resource-constrained low-latency devices and distant cloud data centers, leading to driving the need for heterogeneous and distributed computing architectures.

QUESTION 5:

What are the different aspects of CPS?

a. Cyber, physical, and communication only
b. Cyber, dynamics, and safety only
c. Cyber, physical, and computation only
d. Cyber, physical, computation, dynamics, communication, security, and safety

Answer: d

Detailed Solution: Refer slide 6 of Module 12: Cloud Computing Paradigms; Lecture 57.

QUESTION 6:

What role will service orchestration play in the future of industrial applications?

a. It will limit the interaction of industrial applications with network resources

b. It will not influence traffic routing for industrial applications.
c. It will enable industrial applications to interact with the network resources in advanced ways.
d. It will not select the location and quality of service for industrial applications.

Answer: c

Detailed Solution: Service orchestration will play a key role moving forward, enabling industrial applications to interact with the network resources in advanced ways such as selecting location, quality of service, or influencing the traffic routing to deliver on application demands

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QUESTION 7:

What is the purpose of spatial analysis?

a. To study the characteristics of people and their behaviors
b. To study the characteristics of places and regions and their relationships
c. To analyze financial data and make investment decisions
d. To create maps of the physical world

Answer: b

Detailed Solution: Spatial analysis is an attempt to solve location-oriented problems and a better understanding of where and what is occurring in the surrounding world/ region. – Beyond mapping - study the characteristics of places/ regions and the relationships between them.

QUESTION 8:

How is the signal obtained from the accelerometer data for activity detection?

a. By calculating the square root of the x-axis, y-axis, and z-axis signals
b. By averaging the x-axis, y-axis, and z-axis signals
c. By subtracting the x-axis, y-axis, and z-axis signals
d. By multiplying the x-axis, y-axis, and z-axis signals

Answer: a

Detailed Solution: The collected data has three components: x-axis, y-axis, z-axis.
A = sqrt(x*x + y*y + z*z)

QUESTION 9:

According to the given definition, which of the following statement(s) is (are) true about dew computing?

a. Dew computing is a cloud computing paradigm where all computing is done on the cloud without any reliance on on-premises computers.
b. Dew computing is a paradigm where on-premises computers provide functionality that is dependent on cloud services.
c. Dew computing is a paradigm where on-premises computers and cloud services are completely isolated from each other and do not collaborate in any way.
d. Dew computing is a paradigm where on-premises computers provide functionality that is independent of cloud services and is also collaborative with cloud services.

Answer: d

Detailed Solution: According to the definition given, dew computing is a paradigm where on-premises computers provide functionality that is independent of cloud services and is also collaborative with cloud services.

QUESTION 10:

According to the given objectives, which of the following statement(s) is (are) true about the proposed health model?

a. The health model is designed for cloud computing and does not make use of fog or edge computing.
b. The health model is designed for edge computing only and does not make use of cloud or fog computing.
c. The health model is designed for fog-edge computing and aims to reduce latency, network usage and cost incurred in the cloud.
d. The health model is designed for dew computing and does not make use of cloud, fog, or edge computing.

Answer: c

Detailed Solution: According to the given objectives, the health model is designed for fog-edge computing and aims to reduce latency, network usage and cost incurred in the cloud.

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Cloud Computing

Assignment-Week 1

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Which of the following is a common property of distributed computing?

A) Centralized control

B) Fault tolerance

C) Single point of failure

D) Limited scalability

Correct Answer: B

Detailed Solution: Distributed systems are designed to be resilient, incorporating fault tolerance mechanisms to avoid single points of failure.

QUESTION 2:

Peer-to-Peer computing resembles truly distributed applications.

A) True

B) False

Correct Answer: A

Detailed Solution: Refer to slide-13 of Week-1 (Distributed applications)

QUESTION 3:

Which of the following application(s) uses grid computing?

A) Reactor Applications

B) Air conditioning

C) Crystallography

D) Steganography

Correct Answer: A and C

Detailed Solution: Refer to slide-21 of week-1 (Who uses grid computing?)

QUESTION 4:

Which of the following is(are) a key component(s) of cluster computing?

A) Parallel programming environment
B) Single central processing unit
C) Symmetric Multiprocessing (SMP)
D) Node affinity

Correct Answer: A, and C

Detailed Solution: A cluster is a type of parallel or distributed computing platform consisting of a collection of interconnected stand-alone computing computers working together in a single integrated computing resource. So, key components of stand-alone computers may be PC workstations or SMPs, operating systems, hyper-performance interconnects middleware, parallel programming environment and applications.

QUESTION 5:

Utility computing is a _____ model, in which a service provider makes computing resources and _____ available to the customer.

A) service-provisioning, infrastructure management
B) infrastructure management,service-provisioning
C) cloud computing, resource management
D) service-provisioning, resource management

Correct Answer: A

Detailed Solution: Utility computing is a service-provisioning model, in which a service provider makes computing resources and infrastructure management available to the customer.

QUESTION 6:

Utility computing encapsulates the following characteristic(s)

A) Mobility amalgamation
B) Pay-per-use pricing business model
C) No impact on resource utilization
D) None of above

Correct Answer: B

Detailed Solution: Utility computing is a pay-per-use pricing business model.

QUESTION 7:

In utility computing, the payment model differs for different customers based on scale and payment frequency alone.

A) True
B) False

Correct Answer: B

Detailed Solution: In utility computing, the payment model differs with the customers based on many factors like scale, payment frequency, and commitments.

QUESTION 8:

What are the different characteristic(s) of cloud computing?

A) Virtualization
B) Service disagreement
C) Service orientated
D) Scalability

Correct Answer: A, C and D
Detailed Solution: Refer to slide- “common characteristics” of week-1.

QUESTION 9:

Google Spreadsheet is an example of :

A) Platform as a Service or PaaS
B) Software as a Service or SaaS
C) Function as a Service of FaaS
D) Infrastructure as a Service or Iaas

Correct Answer: B

Detailed Solution: Google Workspace (previously known as G Suite) is a collection of productivity tools that includes Google Spreadsheet, a web-based spreadsheet application. Users can create, edit, and collaborate on spreadsheets online without the need for local software installation. Users can access the application through their web browsers, and Google is responsible for managing the underlying infrastructure and software. Therefore, Google Spreadsheet falls under the category of Software as a Service (SaaS).

QUESTION 10:

In the case of the client-server model: Statement (i) Virtualization is a core concept; Statement (ii) system can scale infinitely

A) Only Statement (i) is correct
B) Only Statement (ii) is correct
C) Both Statements (i) and (ii) are correct
D) None of the statements is correct

Correct Answer: D

Detailed Solution: In the case of the client-server model: there is no concept of virtualization; the system can scale up to a certain extent.

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Cloud Computing

Assignment-Week 2

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Public cloud has _____ and _____ service level agreements(SLAs).

A) loosely coupled, default

B) restrictive, customized

C) customized, default

D) default, restrictive

Correct Answer: D

Detailed Solution: Public cloud has default and restrictive service level agreements(SLAs).

QUESTION 2:

In the XML parser processing model, the parser should not stop processing even if the data is not well-formed.

A) True

B) False

Correct Answer: B

Detailed Solution: In the XML parser processing model, the parser must stop processing and throw an exception if the data is not well-formed.

QUESTION 3:

The on-site private cloud's network capacity restricts on-demand bulk data import or export.

A) True

B) False

Correct Answer: A

Detailed Solution: On-demand bulk data import or export is limited by the network capacity of the on-site private cloud, and real-time processing may be problematic due to networking limitations.

QUESTION 4:

Electronic Data Interchange (EDI) has _____ errors and _____ accuracy.

A) low, medium

B) medium, low
C) high, medium
D) low, high

Correct Answer: D

Detailed Solution: EDI is computer to computer exchange of business data and documents between companies using standard formats recognized both nationally and internationally. EDI has low errors and high accuracy.

QUESTION 5:

Web services provide capabilities similar to EDI but are _____ expensive to implement.

A) more
B) less
C) not applicable
D) equal

Correct Answer: B

Detailed Solution: Web services provide capabilities similar to EDI but are simpler and less expensive to implement.

QUESTION 6:

In XML, a special ‘xmlsn’ attribute is used to define the namespace.

A) True
B) False

Correct Answer: B

Detailed Solution: In XML, a special ‘xmlns’ attribute is used to define the namespace.

QUESTION 7:

Following is(are) example(s) private cloud

A) Amazon VPC
B) Eucalyptus
C) Microsoft Azure
D) Oracle Cloud

Correct Answer: A and B

Detailed Solution: Refer to slide-9 of Week-2 (Private Cloud)

QUESTION 8:

What is(are) goal(s) for a virtual machine architecture?

A) Equivalence
B) Resource control
C) Efficiency
D) None of these

Correct Answer: A, B and C

Detailed Solution: Virtual machine architecture has three goals: equivalence, resource control, and efficiency.

QUESTION 9:

Within a cluster manager, _____ manager is connected via high-speed network.

A) grid
B) cloud
C) computer
D) Node

Correct Answer: C

Detailed Solution: Within a cluster manager the computer manager is connected via high-speed network.

QUESTION 10:

Which statement(s) is(are) application to Data Object Storage (DOS) ?

Statement(i) DOS stores user credentials; Statement(ii)DOS is usually single for a cloud.

A) Only Statement (i) is correct
B) Only Statement (ii) is correct
C) Both Statements (i) and (ii) are correct
D) None of the statements is correct

Correct Answer: C

Detailed Solution: Data Object Storage (DOS) stores user credentials and is usually single for a cloud.

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Cloud Computing

Assignment-Week 3

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

In the context of aggregated demand in resource provisioning in the cloud, how does adding *n* independent demands affect the coefficient of variation (Cv)?

A) Increases the Cv

B) Decreases the Cv

C) Does not change the Cv

D) Inversely proportional to the mean

Correct Answer: B
Detailed Solution: Adding n independent demands reduces the Cv by 1/√n

---

QUESTION 2:

What does the term "biasness towards vendors" imply in the context of SLA monitoring?

A) Vendor-driven selection of monitoring parameters

B) Customer-driven selection of monitoring parameters

C) Balanced approach in monitoring parameters

D) Lack of active monitoring on the customer's side

Correct Answer: A

Detailed Solution: Biasness towards vendors means measurement of parameters is mostly established according to vendor advantage or in other words vendor-driven selection of monitoring parameters

---

QUESTION 3:

In the Openstack storage concept, _____ storage persists until the VM is terminated and is managed by _____.

A) Nova, Cinder

B) Ephemeral, Cinder

C) Cinder, Ephemeral

D) Ephemeral, Nova

Correct Answer: D

Detailed Solution: In the Openstack storage concept, ephemeral storage persists until the VM terminates and is managed by Nova.

QUESTION 4:

What condition makes periodic provisioning acceptable in the presence of linear demand?

A) High resource utilization
B) Non-linear demand
C) Instantaneous demand
D) Flat demand

Correct Answer: D

Detailed Solution: If demand is flat, it is linear and periodic provisioning is acceptable.

QUESTION 5:

What is(are) the key factor(s) to consider in a hybrid model for utility pricing?

A) Reliability and accessibility
B) Network cost and usage costs
C) Peak to average demand ratio
D) Interoperability overhead

Correct Answer: C

Detailed Solution: The key factor to consider in a hybrid model for utility pricing is ratio of peak to average demand.

QUESTION 6:

What architecture is used in a parallel database for the efficient execution of SQL queries?

A) Shared memory architecture
B) Shared disk architecture
C) Shared nothing architecture
D) Shared cache architecture

Correct Answer: C

Detailed Solution: For shared-nothing architecture in the parallel database, tables are partitioned and distributed across multiple processing nodes and SQL optimizer handles distributed joins.

QUESTION 7:

What type of environment benefits from utility pricing?

A) Environments with fixed demand levels

B) Environments with limited resource scalability

C) Environments with variable demand levels

D) Environments with prepaid resource allocation

Correct Answer: C

Detailed Solution: Utility pricing or pay-per-use pricing benefits apply in environments with variable demand levels.

QUESTION 8:

What is the role of Neutron in the provisioning flow in OpenStack?

A) Fetches information about the whole cluster from the database
B) Publishes a message to the compute queue to trigger VM provisioning
C) Configures IP, gateway, DNS name, and L2 connectivity.
D) Contacts Cinder to get volume data

Correct Answer: C
Detailed Solution: Refer to slide 18 of OpenStack

QUESTION 9:

How does the master node in the Google File System maintain communication with chunk servers?

A) Command messages

B) Update messages

C) Query messages

D) Heartbeat messages

Correct Answer: D

Detailed Solution: In GFS, master maintains regular communication with chunk servers by Heartbeat messages

QUESTION 10:

What does the ‘availability’ metric represent in the monitoring and auditing of SLAs?

A) The speed at which a service responds

B) The percentage of uptime for a service

C) How often the service is available

D) The ability for a resource to grow infinitely

Correct Answer: B

Detailed Solution: Availability is represented as a percentage of uptime for a service in a given observation period.

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Cloud Computing

Assignment-Week 4

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

In Microsoft Azure, a deployment user is required for FTP and local Git deployment to a web app.

A) TRUE
B) FALSE

Correct Answer: A

Detailed Solution: A deployment user is required for FTP and local Git deployment to a web app in Microsoft Azure.

QUESTION 2:

Azure Web Apps lack scalability.

A) TRUE
B) FALSE

Correct Answer: B

Detailed Solution: Azure Web Apps are highly scalable, self-patching web hosting services. Therefore, the statement is false.

QUESTION 3:

Match the Google Cloud Platform services with their respective domain (compute, storage or app services).

Column I	Column II
1. BigQuery 2. App Engine 3. Cloud SQL	I. Compute II. App Services III. Storage

a. 1 => II, 2 => III, 3 => I
b. 1 => II, 2 => I, 3 => III
c. 1 => III, 2 => I, 3 => II
d. 1 => I, 2 => III, 3 => II

Correct Answer: B

Detailed Solution: In Google Cloud Platform (GCP), BigQuery is used as an app service, App Engine is used as a compute service and Cloud SQL provides storage service.

QUESTION 4:

Which of the following is/are App services provided by Google Cloud Platform?

A) Cloud Endpoints
B) Google App Engine
C) Cloud SQL
D) BigQuery

Correct Answer: A, D

Detailed Solution: Cloud Endpoints and BigQuery are App services provided by Google Cloud Platform.

QUESTION 5:

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) MySQL or NoSQL databases are present in Google DataStore
C) BigQuery maintains, manages, and administers relational databases on Google Cloud Platform
D) Cloud Storage provides flexible object storage with global edge caching

Correct Answer: B, D

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

QUESTION 6:

At the time of deployment of an app in Azure, the system asks for a password. The password used to login to the Azure portal should be entered.

A) True
B) False

Correct Answer: B

Detailed Solution: The user should make sure to enter the password created in “Configure a deployment

user", not the password used to log in to the Azure portal.

QUESTION 7:

Google APIs help to:

A) migrate the web app to Google Cloud Platform.
B) scale up the app according to the demand/ service requests.
C) provide flexible object storage with global edge caching.
D) integrate Google's services into the application.

Correct Answer: D

Detailed Solution: Google APIs help to integrate Google's services into the application.

QUESTION 8:

Statement 1: Azure supports public cloud platforms.
Statement 2: Azure App Service plan defines security.

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: A

Detailed Solution: Microsoft Azure is Microsoft's public cloud computing platform. Azure App Service Plan is the container for hosting Web Apps, API Apps, Mobile Apps and Function Apps.

QUESTION 9:

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

A) Networking
B) Compute
C) Authentication and Identity service
D) Storage

Correct Answer: C

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 C.

QUESTION 10:

Identify the incorrect statement(s) on Google App Engine.

A) It is a part of Google Cloud Platform (GCP) “compute” infrastructure
B) It is a part of Google Cloud Platform (GCP) “services” infrastructure
C) While using Google App Engine, we need to worry about patching and maintenance.
D) It is a Platform as a Service (PaaS) component of GCP

Correct Answer: B, C

Detailed Solution: Google App Service is a part of GCP compute infrastructure. It is a Platform as a Service (PaaS) component of GCP. Using App Engine, we can just focus on our code and do not need to worry about patching or maintenance. So, the incorrect options are B and C.

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Cloud Computing

Assignment- Week 1

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Utility computing encapsulates the following characteristic(s)

a) Mobility amalgamation
b) No impact on resource utilization
c) Pay-per-use pricing business model
d) None of above

Correct Answer: c
Detailed Solution: Utility computing is a pay-per-use pricing business model.

QUESTION 2:

In the context of the client-server architecture: Statement (i) posits that virtualization is a fundamental principle; Statement (ii) claims that the system has limited scalability.

a) Only Statement (i) is correct
b) Only Statement (ii) is correct
c) Both Statements (i) and (ii) are correct
d) None of the statements is correct

Correct Answer: b
Detailed Solution: Detailed Solution: In the case of the client-server model: there is no concept of virtualization; the system can scale up to a certain extent

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QUESTION 3:

A cluster is a type of _____ or distributed computing platform consisting of a collection of interconnected stand-alone computing computers working together in a _____computing resource.

a) computers, parallel
b) single integrated, parallel
c) node, parallel
d) parallel, single integrated

Correct Answer: d
Detailed Solution: A cluster is a type of parallel or distributed computing platform consisting of a collection of interconnected stand-alone computing computers working together in a single integrated computing resource.

QUESTION 4:

Dropbox is an example of:

a) Software as a Service or SaaS
b) Platform as a Service or PaaS
c) Function as a Service or FaaS
d) Infrastructure as a Service or IaaS

Correct Answer: a
Detailed Solution: Dropbox is categorized as Software as a Service (SaaS) due to the nature of the services it offers and how it delivers these services to its users.

QUESTION 5:

For less data-intensive applications, horizontal scale-out elasticity is the ideal solution.

a) True
b) False

Correct Answer: b
Detailed Solution: Horizontal scale-out means adding additional computation units and having them act in concert. It is suitable for large scale-out scenarios.

QUESTION 6:

The combination of Service-Oriented Infrastructure and Cloud Computing leads to _____.

a) PaaS
b) FaaS
c) Serverless
d) XaaS

Correct Answer: d

Detailed Solution: "Anything as a Service" is what XaaS stands for. It's a catch-all term for cloud-based services.

QUESTION 7:

Utility computing is a service-provisioning model, in which a service provider makes computing resources and infrastructure management available to the customer.

a) True
b) False

Correct Answer: a

Detailed Solution: Utility computing is a service-provisioning model, in which a service provider makes computing resources and infrastructure management available to the customer.

QUESTION 8:

Which of the following is false?

a) Private cloud is dedicated solely to an organization.
b) Community cloud is a composition of public and private cloud.
c) Public cloud is available to the general public.
d) None of these

Correct Answer: b

Detailed Solution: Community cloud is shared by several organizations and serves a specific goal.

QUESTION 9:

Which of the following is one of the characteristics of PaaS?

a) Provides tools to deploy user applications
b) Application is provided by the cloud provider
c) Resources are distributed as a service
d) None of these

Correct Answer: a
Detailed Solution: PaaS provides tools to deploy user applications.

QUESTION 10:

Which of the following is/are a type of Grid?

a) Computational Grid
b) Data Grid
c) Edge Grid
d) All of the above

Correct Answer: a, b
Detailed Solution: Types of grid are data grid, computational grid and collaboration grid.

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Cloud Computing

Assignment- Week 2

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

_____ generally stores the cloud subscriber's metadata like user credentials and OS images.

a) SLA (Service Level Agreement)
b) Cloud Manager
c) DOS (Data Object storage)
d) MOS (Metadata Object storage)

Correct Option: c
Detailed Solution: DOS generally stores the cloud subscriber's metadata like user credentials and OS images.

QUESTION 2:

Universal Description, Discovery, and Integration (UDDI) represents a format for data exchange, designed to hold and convey data objects that are made up of pairs of attributes and values.

a) True
b) False

Correct Answer: a
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.

QUESTION 3:

Which factors should an organization consider while planning to deploy an outsourced private cloud?

a) Only Network Dependency
b) Only Risks from multi-tenancy
c) Both Network Dependency and Risks from multi-tenancy
d) Neither Network Dependency nor Risks from multi-tenancy

Correct Answer: c
Detailed Solution: For outsourced private cloud, subscribers may have an option to provide a

unique, protected, and reliable network. Additionally, there is always a risk of multi-tenancy.

QUESTION 4:

What is/are the main difference(s) between virtualization and dual boot?

a) In virtualization, both operating systems run simultaneously, but not in dual boot.
b) In virtualization, operating systems are not isolated from each other, but not in dual boot.
c) In a dual boot, both operating systems run simultaneously, but not in virtualization.
d) No difference between dual boot and virtualization.

Correct Option: a
Detailed Solution: Virtualization is a method of running multiple operating systems and user applications on the same hardware. Both OSs run simultaneously and are completely isolated from each other.

QUESTION 5:

Web services enhance distributed interoperability through the use of open standards, enabling any two software components to communicate and are designed to address firewall issues.

a) True
b) False

Correct Answer: a
Detailed Solution: Web services indeed improve distributed interoperability by utilizing open standards, which allows different software components to communicate effectively. Additionally, they are designed to navigate and resolve firewall issues, making them suitable for use across various network configurations.

QUESTION 6:

Ubuntu Enterprise Cloud (UEC) is an example of

a)Public cloud
b) Hybrid cloud
c)Private cloud
d) Community Cloud

Correct Option: c
Detailed Answer: Ubuntu Enterprise Cloud (UEC) is an example of a private clou**d.**

QUESTION 7:

Cloud Manager is the public access point to the cloud where subscribers _____ up for accounts and has a mechanism for _____ subscribers.

a) sign, integrating
b) sign, authenticating
c) sign, accessing
d) access, authenticating

Correct Answer: b
Detailed Solution: Cloud Manager is the public access point to the cloud where subscribers sign up for accounts and has a mechanism for authenticating subscribers.

QUESTION 8:

Hypervisor is also known as

a) Cluster Manager
b) Virtual Machine Handler
c) Virtual Machine Manager
d) Virtual Machine Monitor

Correct Answer: d
Detailed Solution: The hypervisor is also known as Virtual Machine Monitor

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QUESTION 9:

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

a) True
b) False

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

QUESTION 10:

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

a) FTP
b) MQTT
c) SAX
d) XAS

Correct Answer: c
Detailed Solution: DOM operates on the documents as whole, SAX parsers operate on each piece of the XML document sequentially.

Cloud Computing

Assignment- Week 3

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

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

QUESTION 2:

Statement 1: In ephemeral storage, the stored objects persist until the VM is terminated.

Statement 2: The ephemeral storage is managed by Cinder in OpenStack.

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

QUESTION 3:

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 4:

Horizon is a _____ self-service portal to interact with underlying OpenStack services

a) mobile based
b) OS based
c) web based
d) None of the above

Correct Option: c
Detailed Solution: Horizon provides a web-based self-service portal to interact with underlying OpenStack services, such as launching an instance, assigning IP addresses and configuring access controls

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QUESTION 5:

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

(a) Eff = (T*P)/M

(b) Eff = T*(M/P)

(c) Eff = T*P*M

(d) Eff = T/(P*M)

Correct Answer: d
Detailed Solution: Eff = T/(P*M) is the parallel efficiency(Eff) of an algorithm.

QUESTION 6:

In cloud, service downtime is 30 minutes and availability of the service is 0.80. What is the service uptime?

(a) 120 minutes
(b) 60 minutes
(c) 150 minutes
(d) 135 minutes

Correct Option: c
Detailed Answer: Availability = 1 – (downtime/uptime).
Uptime = Downtime/(1-Availability) = 30/(1-0.8) = 150 minutes

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QUESTION 7:

Which of the following is/are NOT SLA requirement(s) of PaaS cloud delivery model?

a. Data Retention and Deletion
b. Privacy
c. Machine-Readable SLAs
d. Certification

Correct Answer: a,c
Detailed Solution: Data Retention and Deletion and Machine-Readable SLAs are not SLA requirements with respect to Paas cloud delivery model.

QUESTION 8:

What does the 'availability' metric represent in the monitoring and auditing of SLAs?

a) The speed at which a service responds
b) How often the service is available
c) The ability for a resource to grow infinitely
d) The percentage of uptime for a service

Correct Answer: d
Detailed Solution: availability is represented as a percentage of uptime for a service in a given observation period.

QUESTION 9:

What architecture is used in a parallel database for the efficient execution of SQL queries?

a) Shared memory architecture
b) Shared disk architecture
c) Shared nothing architecture
d) Shared cache architecture

Correct Answer: c
Detailed Solution: For shared-nothing architecture in the parallel database, tables are partitioned and distributed across multiple processing nodes and SQL optimizer handles distributed joins

---

QUESTION 10:

_____ is used for networking services in OpenStack.

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

Correct Answer: b
Detailed Solution: Neutron is used for networking services in OpenStack.

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Cloud Computing

Assignment- Week 4

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Which of the following statement(s) is/are FALSE for Microsoft Azure Resource Group?

(a) It is a logical container
(b) It manages Azure resources
(c) It deploys web apps, databases, and storage accounts
(d) It is a physical container

Correct Option: d

Detailed Solution: A resource group is a logical container into which Azure resources like web apps, databases, and storage accounts are deployed and managed. Hence, D is the only incorrect option.

QUESTION 2:

Statement 1: Azure supports public cloud platforms.

Statement 2: Azure App Service plan defines security.

(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: a

Detailed Solution: Microsoft Azure is Microsoft's public cloud computing platform. Azure App Service Plan is the container for hosting Web Apps, API Apps, Mobile Apps and Function Apps.

QUESTION 3:

Google Cloud Datastore provides flexible object storage with global edge caching.

(a) TRUE
(b) FALSE

Correct Answer: a

Detailed Solution: Google Cloud Storage, not Datastore provides flexible object storage with global edge caching. So the statement is false

---

QUESTION 4:

Google APIs help to:

a) scale up the app according to the demand/ service requests.
b) integrate Google's services into the application.
c) migrate the web app to Google Cloud Platform.
d) None of the above

Correct Option: b
Detailed Solution: Google APIs help to integrate Google's services into the application.

QUESTION 5:

Which of the following is/are storage service(s) provided by Google Cloud Platform(GCP)?

(a) Cloud SQL

(b) BigQuery

(c) Cloud Datastore

(d) Cloud Endpoints

Correct Answer: a, c
Detailed Solution: Cloud SQL and Cloud Datastore are the storage services mentioned here provided by GCP. Hence, A and C are correct..

QUESTION 6:

Match the following columns:

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

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

Correct Option: a

Detailed Answer: GoogleAppEngine helps to migrate web applications to Google Cloud Platform. GoogleCloudEndpoints help end users' application scalability. GoogleAPIs integrate Google's services into end users' applications. So, the correct option is A.

QUESTION 7:

In OpenStack, when a VM is terminated, which of the following memory resources are freed?

a. Ephemeral storage
b. Block Storage
c. Persistent Storage
d. RAM

Correct Answer: a, d

Detailed Solution: In OpenStack, ephemeral storage and RAM are freed when a VM is terminated.

QUESTION 8:

Statement 1: When deploying the Azure app remotely, the login password of the Azure account needs to be entered when the system asks for password.

Statement 2: In Microsoft Azure, a deployment user is required for FTP and local Git deployment to a web app.

A. Statement 1 is True and Statement 2 is False
B. Statement 1 is False and Statement 2 is True
C. Both are True
D. Both are False

Correct Option: b

Detailed Answer: A deployment user is required for FTP and local Git deployment to a web app in Microsoft Azure. When deploying the Azure app remotely, the password created while configuring the deployment user should be used, not the password used to log in to the Azure portal. So the correct option is B.

QUESTION 9:

The Azure App pan has a scale count of ____ instances.

(a) 1 to 10
(b) 1 to 100
(c) 1 to 50
(d) 1 to 20

Correct Answer: d

Detailed Solution: The Azure App pan has a scale count of 1 to 20 instances.

QUESTION 10:

While developing a web-app using Google App Engine, the development server should not be kept running when changes are made to the source file.

a) TRUE

b) FALSE

Correct Option: b

Detailed Answer: The development server can be kept running while the application is being developed in Google App Engine. The development server watches for changes in the source files and reloads them if necessary. Hence, the statement is false.

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Cloud Computing

Assignment- Week 5

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

____ is a formal contract between a Service Provider (SP) and a Service Consumer (SC).

A. SLO

B. SLA

C. KPI

D. Utility Premium

Correct Option: B

Detailed Answer: SLA (Service Level Agreement) is a formal contract between a Service Provider (SP) and a Service Consumer (SC) in slide 2 of SLA. So the correct option is B.

QUESTION 2:

Statement 1: SLA contains SLO.

Statement 2: Multiple KPIs are aggregated to SLA.

A. Statement 1 is TRUE and Statement 2 is FALSE

B. Statement 2 is TRUE and Statement 1 is FALSE

C. Both statements are TRUE

D. Both statements are FALSE

Correct Answer: A

Detailed Solution: SLA contains SLO. Multiple KPIs are aggregated to SLO. So statement 1 is correct and statement 2 is incorrect.

QUESTION 3:

If demand is flat, the penalty will be linear.

A. TRUE

B. FALSE

Correct Answer: B

Detailed Solution: If demand is flat, the penalty will be zero.

QUESTION 4:

What is/are the correct statement(s) regarding VM load management?

A. When load increases, new VMs should be scheduled to new nodes.

B. When load decreases, use WOL to start up waiting nodes.

C. When load increases, use WOL to start up waiting nodes.

D. When load decreases, live migrate VMs to more utilized nodes.

Correct Option: A, C, D

Detailed Answer: When load decreases, VMs should be live migrated to more utilized nodes. When load increases, WOL should be used to start up waiting nodes and new VMs should be scheduled to new nodes.

QUESTION 5:

A company XYZ needs to support a spike in demand when it becomes popular followed potentially by a reduction once some of the visitors turn away. The company has two options to satisfy the requirements which are given in the following table:

Expenditure	**In-house server (INR)**	**Cloud server (INR)**
Purchase cost	1,80,000	—
Cost/hour (over three-year span)	—	32
Efficiency	60%	80%
Power and cooling (cost/hour)	25	—
Management cost (cost/hour)	10	2

Select the correct statement(s) regarding the value(s) of (total-cost/effective-hour) for both the options.

A. Total-cost / Effective-hour for in-house server is 81.42 INR over three years.

B. Total-cost / Effective-hour for cloud server is 42 INR.

C. Total-cost / Effective-hour for in-house server is 46.42 INR over three years.

D. Total-cost / Effective-hour for cloud server is 40 INR.

Correct Answer: B, C

Detailed Solution: For in-house server:

Cost/hour = 1,80,000/(3*365*24) = 6.849 INR (Time is given as a three year span.)

Cost/Effective-hour = Cost/hour * (1/efficiency) = 6.489*(100/60) ~ 11.42 INR

Total cost/Effective-hour = 11.42 + 25 + 10 = **46.42 INR**

Power and cooling and management cost should not be multiplied with efficiency.

For cloud server:

Cost/hour = 32 INR

Cost/Effective-hour = Cost/hour * (1/efficiency) = 32*(100/80) = 40 INR

Total cost/Effective-hour = 40 + 2 = **42 INR**.

QUESTION 6:

A third-party application runs in the cloud for 12 hours/day. At the end of one month [30 days], it was found that the cloud service suffered 5 outages of durations: 1 hour 30 minutes, 30 minutes, 2 hours 15 minutes, 1 hour 45 minutes and T hours, each on different days over the service period. Suppose a cloud guarantees service availability for 97% of time. What are the possible value(s) of T that SLA negotiation gets honored in terms of service availability?

A. 3 hours
B. 6 hours
C. 12 hours
D. 8 hours

Correct Option: A

Explanation: Total Outage: (6+T) hours, application runs for 360 hours in a month. Availability = 1 - (downtime/uptime). For availability: [1- {(6+T)/(354-T)}] >= 0.97, T<=4.48. Option A is correct.

QUESTION 7:

Which of the following is/are objective(s) of Resource Management?

A. Increased latency
B. Scalability
C. Improved throughput
D. Improved security

Correct Option: B, C

Detailed Answer: From the objectives outlined in slide 9 of Resource Management - II.

QUESTION 8:

Which of the following is/are resource allocation approaches in resource management?

A. Energy-aware resource allocation
B. Reinforcement learning guided control policy
C. Network queueing model
D. Intelligent multi-agent model

Correct Answer: A, D

Detailed Solution: Energy-aware resource allocation and intelligent multi-agent model are resource allocation approaches. Network queueing model is a resource provisioning approach and reinforcement learning guided control policy is a resource adaptation approach..

QUESTION 9:

Statement 1: Each reducer groups the results of the map step using different keys and performs a function f on the list of values that correspond to these keys.

Statement 2: Files are sorted by a key and stored to the local file system.

A. Statement 1 is TRUE and Statement 2 is FALSE
B. Statement 2 is TRUE and Statement 1 is FALSE
C. Both statements are TRUE
D. Both statements are FALSE

Correct Answer: B
Detailed Solution: Each reducer groups the results of the map step using the same keys and performs a function f on the list of values corresponding to the keys. So statement 1 is false. Statement 2 is true.

QUESTION 10:

In computing, there is a nonlinear relationship between the number of processing cores used and power consumption

A. TRUE
B. FALSE

Correct Option: A

Detailed Answer: Refer to slide 10 of resource management-I.

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Cloud Computing

Assignment- Week 6

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Modification is an attack on:

A) Authenticity

B) Integrity

C) Confidentiality

D) Availability

Correct Option: B

Detailed Solution: Modification is an attack on integrity.

QUESTION 2:

Which of the following is/are example(s) of passive attack?

A) Replay

B) Denial of service

C) Traffic analysis

D) Masquerade

Correct Option: C

Detailed Solution: Traffic analysis is an example of passive attack.

QUESTION 3:

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

A) Prevent attackers from violating security policy

B) Detect attackers' violation of security policy

C) Stop attack, assess and repair damage

D) Continue to function correctly even if attack succeeds

Correct Option: C, D

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

QUESTION 4:

Statement I: Authorization is the identification of legitimate users.

Statement II: Integrity is the protection against data alteration/corruption.

A. Statement I is TRUE and statement II is FALSE.

B. Statement I is FALSE and statement II is TRUE.

C. Both statements are TRUE.

D. Both statements are FALSE.

Correct Option: B

Detailed Solution: Refer slide no. 18 of Cloud-Security I. Authorization is the determination of whether or not an operation is allowed by a certain user. Integrity is the protection against data alteration/corruption. So the first statement is false and the second statement is true.

QUESTION 5:

Which of the following is/are hypervisor risks associated with rogue hypervisor rootkits?

A) Vulnerable virtual machine applications like Vmchat, VMftp, Vmcat etc.

B) Hypervisor that hides itself from normal malware detection systems

C) Improper configuration of VM.

D) Hypervisor that creates a covert channel to dump unauthorized code.

Correct Answer: B, D

Detailed Solution: Hypervisor risks associated with rogue hypervisor rootkits include hypervisors that hide themselves from normal malware detection systems, and hypervisors that create a covert channel to dump unauthorized code.

QUESTION 6:

1. Injection attack	(a) Attacker sending huge amounts of requests to a certain service and causing denial of service.
2. Flooding	(b) Browser-based security issues.
3. Metadata (WSDL) spoofing attack	(c) Introduce malicious code to change the course of execution.
	(d) Malicious reengineering of Web Services' metadata description.

A) 1-(a), 2-(b), 3-(d)

B) 1-(c), 2-(a), 3-(d)

C) 1-(b), 2-(c), 3-(d)

D) 1-(a), 2-(c), 3-(d)

Correct Option: B

Detailed Solution: The following are web service based attacks. Refer to slide 23 of Cloud Security-II.

QUESTION 7:

Recovery Time Objective (RTO) represents the period of time allowed for the complete execution of the task.

A) TRUE

B) FALSE

Correct Option: B

Detailed Solution: Recovery Time Objective (RTO) represents 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 8:

Which of the following Open-source tools is/are used to perform TCP connect probes on the Amazon EC2 platform?

A) nmap
B) wget
C) ipconfig
D) hping

Correct Option: A

Detailed Solution: nmap is used to perform TCP connect probes (attempt to complete a 3-way hand-shake between a source and target). Refer to slide 12 of Cloud Security III.

QUESTION 9:

In para virtualization, VMs interact with the host OS.

A) TRUE

B) FALSE

Correct Option: A

Detailed Solution: The statement is true. Refer page 19 of Cloud Security-II.

QUESTION 10:

In conflict removal, when is introduction of a virtual role required?

A) In case of violation of SoD constraint violation.

B) In case of cyclic inheritance conflict where exactly matched role set exists.
C) In case of cyclic inheritance conflict where no exactly matched role set exists.
D) None of the above.

Correct Option: C

Detailed Solution: Refer page 27 of Cloud Security-III on conflict removal.

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Cloud Computing

Assignment- Week 7

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Which of the following is/are key requirement(s) of Mobile Cloud Computing?

A) Simple APIs offering access to mobile services
B) Internet access to remotely stored applications in the cloud
C) Sophisticated APIs requiring knowledge of underlying network technologies
D) Web interface

Correct Answer: A, B, D
Detailed Solution: Refer slide 12 of Mobile Cloud Computing - I.

QUESTION 2:

In Mobile Cloud Computing, the synchronizer module collects results of split execution and combines them, and makes the execution details transparent to the user.

A) TRUE
B) FALSE

Correct Answer: A
Detailed Solution: 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 3:

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

A) Distributed, Centralized
B) Distributed, Distributed
C) Centralized, Distributed
D) Centralized, Centralized

Correct Answer: A

Detailed Solution: Geographical distribution of server nodes is Distributed in Fog Computing, and Centralized in Cloud Computing. So, the correct option is A.

QUESTION 4:

Formulate the amount of energy saved (E) during offloading for the given data.
Energy cost/second while when mobile phone is doing computation = C1
Energy cost/second while when mobile phone is idle = C2

Energy cost/second while when mobile phone is transmitting the data = C3
Speed of cloud to compute **k** instructions = Sc
Speed of mobile to compute **k** instructions = Sm
Data need to transmit = D
Bandwidth of the wireless Internet = B

A) E = C2*(k/Sm) - C1*(k/Sc) - C3*(D/B)
B) E = C1*(k/Sm) - C2*(k/Sc) - C3*(D/B)
C) E = C3*(k/Sm) - C2*(k/Sc) - C1*(D/B)
D) E = C1*(k/Sc) - C2*(k/Sm) - C3*(D/B)

Correct Answer: B
Detailed Solution: Refer slide 37 of Mobile Cloud Computing - I and Lecture 32.

QUESTION 5:

Which of the following is/are not a benefit of Fog computing?

A) Location awareness
B) Higher latency as compared to cloud computing
C) Improved QoS
D) Man-in-the-middle-attack

Correct Answer: B, D
Detailed Solution: Fog results in low latency, which is one of its major benefits. As the computing data is over dispersed edge devices, there may occur issues like Man-in-the-middle-attack. So, the correct answers are B and D.

QUESTION 6:

Population of a city/town is a static geographic information.

A)TRUE
B)FALSE

Correct Answer: B
Detailed Solution: Population of a city is a dynamic geographic information.

QUESTION 7:

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

A) Intelligence is brought to the cloud from the end users.
B) Fog computing is used for real-time applications
C) Fog nodes' response time is higher than cloud server
D) Network routers, WiFi Gateways will be capable of running applications

Correct Answer: A, C

Detailed Solution: Fog computing brings intelligence to end users from the cloud, it is used 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 A and C.

QUESTION 8:

Fog Computing has _____ number of server nodes and has _____ delay jitter compared to Cloud Computing.

A) small, higher

B) large, higher

C) small, lower

D) large, lower

Correct Answer: D

Detailed Solution: Fog Computing has a very large number of server nodes and has lower delay jitter compared to Cloud Computing. Hence, the correct answer is D.

QUESTION 9:

In Geospatial Cloud Models, which level of interoperability ensures the ability to "consume" the information?

A) Service Level Interoperability
B) Security Level Interoperability
C) Data Level Interoperability
D) None of the above

Correct Answer: C
Detailed Solution: Data Level Interoperability ensures the ability to "consume" the information. So the correct option is C. Refer to interoperability in Challenges in Geospatial Cloud.

QUESTION 10:

Consider the statements and select the correct answer:
Statement I: In Geospatial cloud, data services in cloud can be run through IaaS service model.
Statement II: Web service is the key technology to provide Geospatial services.

A) Statement 1 is correct but Statement 2 is incorrect

B) Statement 2 is correct but Statement 1 is incorrect

C) Both the statements are correct

D) Both the statements are incorrect.

Correct Answer: B
Detailed Solution: In Geospatial cloud, data services in cloud can be run through PaaS service model. Web service is the key technology to provide Geospatial services. Hence, B is the correct answer.

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Cloud Computing

Assignment- Week 8

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

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

a) True

b) False

Correct Answer: a

Detailed Solution: Docker compose is a tool for defining and running multi-container Docker applications. So, the correct option is (a). Lecture 36, 18:17 min.

QUESTION 2:

Choose the most appropriate option.

Statement 1: An image is a lightweight, stand-alone, executable package that includes everything to run a piece of software.

Statement 2:Container is a run time instance of an image.

a. Statement 1 is correct but Statement 2 is incorrect

b. Statement 2 is correct but Statement 1 is incorrect

c. Both the statements are correct

d. Both the statements are incorrect.

Correct Answer: c

Detailed Solution: Both the statements are correct. Lecture 36, 20:51 min

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QUESTION 3:

Vehicles providing their networking and data processing capabilities to other vehicles through the cloud comes under which service of IoT-based Vehicular Data Clouds.

a. SaaS

b. PaaS

c. IaaS

d. None of these

Correct Answer: c

Detailed Solution: Vehicles provide their networking and data processing capabilities to other vehicles through the cloud comes under the Networking and Data processing as a service (IaaS)

of IoT-based Vehicular Data Clouds under IaaS service. Hence, the correct option is (c). Lecture 39, 28:02 min.

QUESTION 4:

An IoT platform's basic building blocks is/ are (choose the correct option(s)).

a. Gateway
b. Images
c. Network and Cloud
d. Containers

Correct Answer: a, c
Detailed Solution: An IoT platform has three basic building blocks, Things, Gateway, and Network and Cloud. Lecture 39, 10:09 min.

QUESTION 5:

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
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). Lecture 37, 28:45 min.

QUESTION 6:

Statement 1: Sensor-Cloud proxy exposes sensor resources as cloud services.

Statement 2: Sensor network is still managed from the Sensor-Cloud Interface via Sensor Network Proxy

a. Statement 1 is True and Statement 2 is False
b. Statement 2 is True and Statement 1 is False
c. Both statements are True
d. Both statements are False

Correct Answer: c

Detailed Solution: Sensor cloud proxy exposes sensor resources as cloud services.

Sensor network is still managed from the Sensor-Cloud

Interface via Sensor Network Proxy. Lecture 38, 21:43 min.- 22:09 min

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QUESTION 7:

Which of the following statements is/are true about Docker ?

Statement 1: Docker hub is used for building docker images and creating docker containers.

Statement 2: Docker compose is a registry used to host various docker images.

a. Statement 1 is correct but Statement 2 is incorrect

b. Statement 2 is correct but Statement 1 is incorrect

c. Both the statements are correct

d. Both the statements are incorrect.

Correct Answer: d

Detailed Solution: Docker Engine is used for building docker images and creating docker containers. Docker Hub is a registry used to host various docker images.

So, the correct option is (d). Lecture 36,17:34.

QUESTION 8:

Sensor data can be easily shared by different groups of users without any extra effort/ measure.

a. True

b. False

Correct Answer: b

Detailed Solution: One of the limitations of Sensor Networks is “Sensor data can not be easily shared by different groups of users.” Hence, the correct option is (b). Lecture 38, 9:32 min.

QUESTION 9:

_____ 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). Lecture 36, 24:10

QUESTION 10:

_____ enables different networks, spreads in a huge geographical area to connect together and be employed simultaneously by multiple users on demand.

a) Serverless

b) IoT Cloud

c) Sensor Cloud

d) Green Cloud

Correct Answer: c

Detailed Solution: Sensor Cloud enables different networks, spreads in a huge geographical area to connect together and be employed simultaneously by multiple users on demand. Lecture 38, 20:27

Cloud Computing

Assignment- Week 9

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

In which of the following architectures, two or more partner clouds interoperate to aggregate their resources and provide users with a larger virtual infrastructure?

A) Hybrid/Bursting Architecture

B) Aggregated Architecture

C) Broker Architecture

D) Multiplier Architecture

Correct Answer: B

Detailed Solution: In aggregated cloud federation architecture, two or more partner clouds interoperate to aggregate their resources and provide users with a larger virtual infrastructure.

QUESTION 2:

Select the correct statement(s) regarding offloading.

A) Offloading is a technique in which a server, an application, and the associated data are moved from the edge to the cloud.

B) Offloading augments the computing requirements of individuals or a collection of user devices.

C) Offloading from cloud to the edge can be achieved by server offloading.

D) Offloading from user device to edge can be achieved by application partitioning.

Correct Answer: B, C, D

Detailed Solution: Offloading is a technique in which a server, an application, and the associated data are moved onto the edge of the network. Hence, A is false. All the other statements are correct. Refer to slide-12 of Resource Management - II.

QUESTION 3:

Fog computing is a model in which data, processing and applications are concentrated in devices at the _____ rather than existing almost entirely in the cloud.

a. fog

b. local node

c. network station

d. network edge

Correct Answer: d

Detailed Solution: Fog computing is a model in which data, processing and applications are concentrated in devices at the network edge rather than existing almost entirely in the cloud. So the option is (d).

QUESTION 4:

According to the service placement taxonomy in fog-edge computing, which of the following can be classified as online vs offline?

A) Control plan design
B) Placement characteristic
C) System dynamicity
D) Mobility support

Correct Answer: B
Detailed Solution: According to the service placement taxonomy in fog-edge computing, placement characteristic can be classified as online vs offline.

QUESTION 5:

Fog infrastructure consisting of IoT devices, Fog Nodes, and at least one Cloud Data Center never ensures scalability

a. True
b. False

Correct Answer: b
Detailed Solution: Scalability is one of the characteristics of fog computing.

QUESTION 6:

Cloud Federation should prefer maximum geographical separation.

a. True

b. False

Correct Answer: a

Detailed Solution: Cloud Federation should prefer maximum geographical separation.

QUESTION 7:

In which of the following cloud federation architectures, creation of cross-site networks and cross-site migration of VMs are used?

A) Loosely coupled federation

B) Partially coupled federation

C) Tightly coupled federation

D) None of the above

Correct Answer: C

Detailed Solution: Advanced features like creation of cross-site networks and cross-site migration of VMs are found in tightly coupled federation.

QUESTION 8:

What is(are) the application placement constraint(s) for fog nodes?

a. Network constraints
b. Interoperability
c. Resource constraints
d. None of these

Correct Answer: A,C
Detailed Solution: Network constraints: such as latency, bandwidth, etc. and these constraints need to be considered when deploying applications.
Resource constraints: an infrastructure node is limited by finite capabilities in terms of CPU, RAM, storage, bandwidth, etc. While placing application(s) (service components), the resource requirements need to be considered.

QUESTION 9:

The _____ used for resource management in fog/edge computing are classified on the basis of data flow, control and tenancy.
a. Algorithms
b. Architectures
c. Hardware
d. Infrastructure

Correct Answer: b
Detailed Solution: The architectures used for resource management in fog/edge computing is classified based on data flow, control, and tenancy.

QUESTION 10:

A CSP has little or no control over remote resources in case of
a. Tightly Coupled Federation
b. Medium Coupled Federation
c. Loosely Coupled Federation
d. None of these

Correct Answer: c
Detailed Solution: In loosely coupled federation, a CSP has little or no control over remote resources (for example, decisions about VM placement are not allowed), monitoring information is

limited (for example, only CPU, memory, or disk consumption of each VM is reported), and there is no support for advanced features such as cross-site networks or VM migration.

Cloud Computing

Assignment- Week 10

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Post-copy and Pre-copy migration approaches are employed in :

a. Live Migration process

b. Non-live Migration process

c. Hybrid Migration process

d. None of these

Correct Answer: a

Detailed Solution: Both Post-copy and Pre-copy are approaches for the live migration process.

QUESTION 2:

Kubernetes operates at the hardware level.

a. True

b. False

Correct Answer: b

Detailed Solution: Kubernetes operates at the container level. (Slide 96)

QUESTION 3:

What is(are) the key advantage(s) of Docker?

a. Facilitating microservices

b. Modeling networks.

c. Packaging software

d. None of these

Correct Answer: a,b,c

Detailed Solution: Facilitating microservices, packaging software, and modeling networks for initiating multiple isolated containers on a single machine, are the key advantages of Docker. (slide - 73)

QUESTION 4:

Which of the following statements is most appropriate about Docker ?

a. Docker is a platform that allows to build and run but not ship apps.

b. Docker is a platform that allows to build and ship but but not to run apps.

c. Docker is a platform that allows to build, ship and, run apps.

d. Docker is a platform that only allows to ship and run but not to build apps.

Correct Answer: c

Detailed Solution: Docker is a platform that allows to build, ship and, run any app anywhere. (page - 65)

QUESTION 5:

In Docker utility, _____ is a collection of filesystem layers and some metadata that, if taken together, can be spun up as Docker containers.

a. Operating System

b. Microservice

c. Virtual Machine

d. Image

Correct Answer: d

Detailed Solution: In Docker utility, an image is a collection of filesystem layers and some metadata which if taken together, can be spun up as Docker containers. (slide - 77)

QUESTION 6:

Containers are similar to VMs but they have unrelaxed isolation properties to share the operating system among the applications.

a. True

b. False

Correct Answer: b

Detailed Solution: Containers are similar to VMs but they have relaxed isolation properties to share operating systems among the applications. Therefore, containers are considered lightweight.

QUESTION 7:

Choose the most appropriate option.

Statement 1: Container is a lightweight virtualization technique.

Statement 2: Container contains the code and all its dependencies.

a. Only statement 1 is true

b. Only statement 2 is true

c. Both statement 1 and 2 are true

d. Bothe the statements are false

Correct Answer: c

Detailed Solution: Container is a lightweight virtualization technique. Container contains the code and all its dependencies so the applications run quickly. (slide - 46)

QUESTION 8:

Private Docker registry is a service that stores Docker images.

a. True

b. False

Correct Answer: a

Detailed Solution: Private Docker registry is a service that stores Docker images.

Moreover, Docker on the host machine is split into two parts- a daemon with RESTful API and a client who talks with the daemon.

QUESTION 9:

Docker builds offer enhanced reproducibility and replicability compared to conventional software development approaches.

a. True

b. False

Correct Answer: a

Detailed Solution: Docker builds are more reproducible and and replicable than traditional software building methods. This makes implementing CD much easier. (Slide - 76)

QUESTION 10:

Given the VM memory size of 1024 GB and the transmission rate of 16 MB/sec
What are the total migration time and downtime for non-live VM migration? Choose the most appropriate option.
a. 20 hours, 25 hours
b. 18 hours,18 hours
c. 16 hours, 16 hours
d. 24 hours,20 hours

Correct Answer: b
Detailed Solution: Total Migration time = VM memory size/ transmission rate
=(1024x2^30)/(16x2^20)=65536 secs= 18 hours.
For non-live migration, overall migration time is the same as overall downtime.

Cloud Computing

Assignment- Week 11

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

Which of the following options is most appropriate for FaaS ?

Statement 1: Each function in the FaaS platform gets unlimited execution time.

Statement 2: Functions are always active and ready for execution.

a. Statement 1 is correct but Statement 2 is incorrect.

b. Statement 2 is correct but Statement 1 is incorrect.

c. Both the statements are correct.

d. Both the statements are incorrect.

Correct Answer: d

Detailed Solution: A function in FaaS typically has limited execution time. Functions are not constantly active. FaaS platform listens for the events that instantiate the functions. So, the correct option is (d).

QUESTION 2:

BigQuery is a fully-managed, serverless data warehouse by _____.

a. AWS

b. Google

c. Microsoft

d. IBM

Correct Answer: b

Detailed Solution: BigQuery is a fully-managed, serverless data warehouse that enables scalable analysis over petabytes of data by Google. So, the correct option is (b).

QUESTION 3:

_____are an important distribution mechanism for libraries and custom runtimes in AWS serverless ecosystem.

a. Runtimes

b. Lambda Layers

c. Log streams

d. None of these

Correct Answer: b
Detailed Solution: Lambda layers are an important distribution mechanism for libraries, custom runtimes and other imp function dependencies in AWS serverless ecosystem. So, the correct option is (b).

QUESTION 4:

Which of the following is not a category of research initiative on sustainable cloud computing?

a. Renewable Energy
b. Capacity planning
c. Environment Sandboxing
d. None of these

Correct Answer: c

Detailed Solution: Environment Sandboxing is not a category of research initiative on sustainable cloud computing. The other two options are. So, the correct option is (c).

QUESTION 5:

AWS S3 is a fully managed proprietary NoSQL database service that supports key–value and document data structures and is offered by Amazon.com as part of the Amazon Web Services portfolio.
a. True
b. False

Correct Answer: b
Detailed Solution: Amazon DynamoDB is a fully managed proprietary NoSQL database service that supports key–value and document data structures and is offered by Amazon.com as part of the Amazon Web Services portfolio. Whereas, Amazon S3 is a simple storage service . So, the correct option is (b).

QUESTION 6:

Which of the following is/are the goal of sustainable cloud computing? Choose appropriate option(s).
a. Minimizing the energy consumption.
b. Increasing reliability of CDCs.
c. Maximizing carbon footprint related cost.
d. Increasing network traffic

Correct Answer: a,b
Detailed Solution: Focus on minimizing the energy consumption and carbon footprint and ensuring reliability of CDCs is the goal of sustainable cloud computing.

QUESTION 7:

Runtimes allows you to annotate your function code with custom logging statements which helps

you to analyse the execution flow and performance of your AWS Lambda functions.

a. True

b. False

Correct Answer: b

Detailed Solution: Log stream allows you to annotate your function code with custom logging statements which helps you to analyse the execution flow and performance of your AWS Lambda functions. . So, the correct option is (b).

QUESTION 8:

Serverless covers a wide range of technologies that can be grouped into two categories

a. BaaS and YaaS

b. FaaS and BaaS

c. FaaS and YaaS

d. None of these

Correct Answer: b

Detailed Solution: Serverless covers a wide range of technologies that can be grouped into two categories Faas and BaaS.

QUESTION 9:

Which of the following is/are challenges in serverless computing ?

a. Functions sharing code

b. Asynchronous calls

c. Adoption of too many technologies

d. All of the above

Correct Answer: d

Detailed Solution: Refer Slide 33.

QUESTION 10:

The focus of cloud computing was _____ and the serverless is _____.

a. programmers, system administrators

b. system administrators, programmers

Correct Answer: b

Detailed Solution: The focus of cloud computing was system administrators and the serverless is programmers.