UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination

Program: B.Tech CS+CCVT

Semester II

Subject: Introduction to Virtualization and Cloud Computing

Subject Code: CSVT2001

Time: 2 hrs

Total Questions: 60

Total Marks: 100

Course Objectives: 04

From Each CO

5 Questions X 1 mark = 5marks

10 Questions X 2 marks = 20 marks

CO 1

1 mark Question

Ques 1: What are common set of technologies used to create a manageable cloud environment?

a.   A hypervisor, a hypervisor manager, self service portal, and an automated provisioning tool like IBM Tivoli Provisioning manager

b.   A hypervisor, a hypervisor manager, self service portal, and an automated provisioning and monitoring

c.   A hypervisor and a hypervisor manager like Virtual center or VMControl

d.   A hypervisor and a hypervisor manager, automated provisioning, and monitoring

Ans: b

Ques 2: What is utility computing?

A. It delivers computing resource as a metered service.

B. It is a service model where customers pay a flat rate for usage.

C. It is a computing model where computer resources are provided on-demand.

D. It is an organization that maintains the computer infrastructure for a public service.

Ans: A

Ques3: Identify the data storage technology used in the data center?

a. NAS

b. SAN

c. DAS

d. None of the mentioned

Ans: b

Ques 4: ----------------------------conversion is a process through which physical machines are converted into VMs. ------------------- clones data from physical machine's disk to VM disk. After cloning is complete, it performs system reconfiguration of the destination VM.

    a. Binary Translation, converter

    b. Physical to Virtual machine conversion, converter

    c. System reconfiguration, converter

    d. None of the above

    Ans: b

Ques 5: Which customer scenario is best suited to maximize the benefits gained from using a virtual private cloud?

 A. A small startup business focused primarily on short term projects and has minimal security policies.

B. An enterprise whose IT infrastructure is underutilized on average and the system load is fairly consistent.

C. An enterprise that requires minimal security over their data and has a large existing infrastructure that is capable of handling future need

D. An enterprise that does not want to sacrifice security or make changes to their management practices but needs additional resources for test and development of new solutions.

Ans: D

Ques 6: Which statement is true about the reliability of a cloud computing solution?

 A. A public cloud is less reliable than a private cloud.

B. Cloud computing improves the reliability through the use of multiple sites.

C. A hybrid cloud strategy represents the best approach for a reliable cloud computing environment.

D. A cloud computing service can schedule a maintenance outage that affects the availability of the resources.

Ans: B

Ques 7: How does automation increase the effectiveness of an IT organization?

A. It reduces costs by increasing asset utilization.

B. It provides usage monitoring and cost allocation capabilities.

C. It reduces the manual intervention needed for deploying and managing IT services.

D. It optimizes availability by maintaining configurations and managing changes to resources.

Ans: c

Ques 8: What is a common mechanism of communications among virtual machines running in a cloud environment?

    A. A public IP address for each instance that is connected to a virtual private bridge.

     B. A private IP address for each instance that is connected to a virtual private bridge.

    C. A public IP address for each instance that attaches to the OS software ethernet bridge.

    D. A private IP address for each instance that attaches to the OS software ethernet bridge.

    Ans: B

2 marks Questions

Ques 1: Which of these is a software solution that fulfills the need of supercomputer in an organization?
a) Grid Computing
b) Cloud Computing
c) Virtualization
d) Green Computing
Ans A

Ques 2: In Cloud Computing, which of the following instance of Software as a Service (SaaS) allows users to explore
functionality of Web services such as Google Maps, Payroll Processing, and credit card processing services.
(a) API as a Service (APIaaS)
(b) Testing as a Service (TaaS)
(c) Email as a Service (EaaS)
(d) Data as a Service (DaaS)
Ans: a

Ques 3: Grid computing enables _____resources of computers to work collaboratively to solve a complex problem
A. Owned
B. Homogeneous
C. Heterogeneous
D. Old
Ans: C

Ques 4: Which statement is true about Cluster and Cloud Computing?
a.   A cloud computing environment can be deployed in a cluster computing environment
b.   A cloud computing environment cannot be deployed without a cluster computing
c.   A cluster environment can be deployed in a cloud computing environment
d.   A cluster computing environment cannot be deployed without a cloud computing environment
Ans: c

Ques5: The recent growth of userfriendly file sharing networks such as napster or kazae has now brought as
_____ Networks.
 A. Cluster computing.
 B. Internet computing.
 C. Grid computing.
 D. Peer to peer(p2p).
Ans: d

Ques6: Which of the following is not a cloud stakeholder?
a) Cloud providers
b) Clients
c) End users
d) Cloud users
Ans: b

Ques 7: Point out the correct statement:
    a. Different types of cloud computing service models provide different levels of security services.

b. Adapting your on-premises systems to a cloud model requires that you determine what security mechanisms are required and mapping those to controls that exist in your chosen cloud service provider.

c. Data should be transferred and stored in an encrypted format for security purpose

d. All of the above

Ans: d

Ques 8: What is true about the tasks running on grid computing?

A. The tasks run on a single computer.

B. The tasks are small and independent.

C. The tasks are divided among the computers.

D. The tasks run on a computer using a peer-to-peer system.

Ans: C

Ques 9: Which statement is true about cluster computing and cloud computing?

A. In cloud computing, computers work together; in cluster computing, computers work independently.

B. In cloud computing, resources are treated independently; in cluster computing, the resources are seen as a single system.

C. In cloud computing, resources are virtualized; in cluster computing, resources are running physically in a computer system.

D. In cloud computing, resources are not as reliable as in cluster computing because cluster computing has redundant nodes for high availability.

Ans: B

Ques 10: How can IT resource consolidation and virtualization help companies deliver services?

A. It reduces the network traffic.

B. It scales applications better than traditional clustering of application servers.

C. It allocates computing resources more efficiently and reduces maintenance costs.

D. It creates more maintenance work but virtualization makes it easy to scale applications.

Ans: C

CO 2

1 mark Question

Ques 1: Paravirtualization is possible on:

a) Linux based OS

b) Window based OS

c) Both

d) None

Ans: a

Ques 2: Resources may consist of:

a) CPU, RAM

b) Storage

c) CPU, RAM, Storage, Network, Servers

d) None

Ans: c

Ques 3: Which is faster of two: Full Virtualization or hardware assisted virtualization:

a) Full Virtualization

b) Hardware assisted Virtualization

c) Can't say, both cannot be compared

d) None

Ans: b

Ques 4: For migrating on cloud, what is relationship between CAPEX and OPEX:

a) CAPEX<OPEX

b) CAPEX>OPEX

c) CAPEX>=OPEX

d) CAPEX<=OPEX

Ans: b

Ques 5: While virtual machines can share the physical resources of a physical machine, they remain completely isolated from each other as if they were separate physical machines.

   a. Benefits of Compute Virtualization – Encapsulation
   b. Benefits of Compute Virtualization – Isolation
   c. Benefits of Compute Virtualization - Server Consolidation
   d. Benefits of Compute Virtualization - Reduced Cost

Ans: b

Ques 6:"Cloud" in cloud computing represents what?

   a. Internet
   b. Wireless
   c. Hard drives
   d. People

Ans: a

Ques 7: Point out the wrong statement:

a) Abstraction enables the key benefit of cloud computing: shared, ubiquitous access

b) Virtualization assigns a logical name for a physical resource and then provides a pointer to that physical resource when a request is made

c) All cloud computing applications combine their resources into pools that can be assigned on demand to users

d) None

Ans: c

Ubiquitous computing means:

a) IoT devices in connection

b) Devices may be present everywhere

c) Computing can be done everywhere

d) Its universal computing.

Ans: c

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2 marks Questions

Ques 1: Which of the following is considered an essential element in cloud computing by Cloud Security Alliance?

> 1. Multi-tenancy
>
> 2. Identity and access management
>
> 3. Virtualization
>
> 4. None

Ans: 1

Ques 2. Virtualization can improve on following parameter of our system:

a) Speed

b) Computing capability

c) Hardware utilization

d) Ram availability

Ans : c

Ques 3. Which of the following is the operational domain of Cloud Security Alliance?

a) Scalability

b) Profitability and Interoperability

c) Flexibility

d) None

Ans b

Ques 4: ------------------- is a software that allows multiple OSs to run concurrently on a physical machine and to interact directly with the physical hardware.

  a.   What is Memory Overcommitment?

  b.   What is a Hypervisor?

  c.   What is Binary Translation?

d. What is a Guest OS?

Ans: b

Ques 5: The hypervisor is directly installed on the x86 based hardware

  A. Hypervisor Components – VMM
  B. Hypervisor Components – Kernel
  C. Conversion Options - Hot Conversion
  D. Hypervisor Types - Bare-Metal Hypervisor

Ans: d

Ques 6: What is execution order of API, ISA and ABI instructions?

 a) API, ISA and ABI

 b) API, ABI and ISA

 c) ISA, API, ABI

 e) ABI, API, ISA

 Ans : b

Ques 7: Ring 0 – In OS for virtualization is:

    a) VMware vCenter Converter
    b) Virtual Machine - Perspectives.
    c) X86 Architecture Priviledge Levels.
    d) Hot Conversion Process

Ans: c

Ques 8: Binary Translation means replacing the guest operating system (an operating system running on a virtual machine) instructions that cannot be virtualized, with new instructions that have the same effect on the virtual hardware.

 a) False

 b) True

 c) Incomplete

 d) Something else

 Ans: b

Ques 9: Which is faster of two: Type 1 virtualization or Type 2 virtualization:

a) Type 1 Virtualization

b) Type 2 Virtualization

c) Can't say, both cannot be compared

d) None

Ans :a

Ques 10: Cloud is a best example of:

    A. Utility Computing

B. Distributed Computing
C. Parallel Computing
D. all of above.

Ans: D

CO 3

1 mark Question

Ques 1: You can't count on a cloud provider maintaining your ……………….in the face of government actions.

a) scalability

b) reliability

c) privacy

d) none of the mentioned

Ans: c

Ques 2: Which of the following is Cloud Platform by Amazon ?

a) Azure

b) AWS

c) Cloudera

d) All of the mentioned

Ans: b

Ques 3: What facet of cloud computing helps to guard against downtime and determines costs?

A. Service-level agreements

B. Application programming interfaces

C. Virtual private networks

D. Bandwidth fees

Ans: a

Ques 4: Geographic distribution of data across a cloud provider's network is a problem for many enterprises because it:

A. Breaks compliance regulations

B. Adds latency

C. Raises security concerns

D.   Makes data recovery harder

ANS:A

Ques 5: _____ is a financial estimate for the costs of the use of a product or service over its lifetime.

a) TCO

b) TOC

c) COT

d) All of the mentioned

Ans: A

Ques 6: Which of the following language is used to manage transactions ?

a) WSDL

b) XML

c) SOAP

d) All of the mentioned

Ans: A

Ques7: Which of the following is not considered a cloud computing risk?

A. Loss of network connectivity

B. Data stored in the cloud

C. Network latency

D. Host-based firewalls

Ans: D

Ques 8: Which of the following is not considered a cloud computing risk?

A. Loss of network connectivity

B. Data stored in the cloud

C. Network latency

D. Host-based firewalls

Ans: D

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2 Mark Question

Ques 1: SWIGGY.IN formed a cloud for its all branches but due to its limited resources it obtained the services of AWS for extended provisioning and thus modified its cloud ; The cloud so formed is the example of

a) Private cloud

b) Public cloud

c) Hybrid cloud

d) community cloud

Ans: c

Ques 2: Which of the following can be considered PaaS offering?

a) Google Maps

b) Gmail

c) Google Earth

d) All of the mentioned

Ans: a

Ques 3: Point out the wrong statement :

a) In cloud computing user don't have to worry about data backup and recovery.

b) Cloud computing can be used by small as well as big organisation.

c) Cloud offer almost unlimited storage capacity.

d) All applications benefit from deployment in the cloud.

Ans: d

Ques 4: SaaS supports multiple users and provides a shared data model through   model.

a) single-tenancy

b) multi-tenancy

c) multiple-instance

d) all of the mentioned

Ans: b

Ques 5: Point out the wrong statement :

a) Due to vast number of users in public cloud SLA can't be strictly followed.

 b) A community cloud may be managed by the constituent organization(s) or by a third Party

c) Private clouds may be either on- or off-premises

d) None of the mentioned

Ans: a

Ques 6: What is the biggest disadvantage of community cloud ?

a) Collaboration has to be maintained with other participants

b) Less security features

c) Cloud is used by many organisation for different purposes

d) Organisation losses business autonomy

Ans: d

Ques 7: Point out the wrong statement :

a) The vendor is responsible for all the operational aspects of the service

b) The customer is responsible only for his interaction with the platform.

c) Google's App Engine platform is PaaS offering

d) SaaS require specific application to be accessed globally over the internet.

Ans: d

Ques 8: Which of the following are valid reasons for a firm's not adopting a cloud solution? (Choose two.)

 A. Local hardware is being fully utilized for unchanging IT workloads.

 B. The number of employees rarely changes.

 C. The number of employees changes often.

 D. The firm experiences unpredictable project spikes throughout the year.

Ans: A, B

Ques 9: You are the IT director for a retail clothing outlet. Your competitors are using Internet-delivered inventory, storage, and backup solutions from a specific provider. You conclude it is best that your company use the same services from the same provider. What type of cloud will you be subscribing to?

 A. Community cloud

 B. Retail cloud

 C. Private cloud

 D. Public cloud

Ans: a

Ques 10:................................protects data contents, while…………………ensures that data has not been tampered with.

 A. Availability, scalability

 B. Integrity, confidentiality

 C. Scalability, availability

 D. Confidentiality, integrity

CO 4

1 mark Question

Ques 1: The …………………..service provider manages all the infrastructure, while the client is responsible for all other aspects of the deployment. This can include the operating system, applications, and user interactions with the system

    a. Amazon Web Services
    b. Software as a Service
    c. Infrastructure as a Service
    d. Platform as a Service

Ans: c

Ques 2: Data center clouds are formed by connecting two or more data center cloud networks over wide area network. When building such data center clouds, which component is mainly responsible for increasing the network latency?

    A. Network servers
    B. Network Routing Protocols
    C. Network Interfaces
    D. Network Clients

    Ans: C

Ques 3: Live Migration of VMs help in:

    A. Maintenance
    B. Load Balancing
    C. Availability
    D. All of the above
Ans: D

Ques4: Which one the causes not impacting major system availability

    a. Service Performance degrade
    b. Service outage by unplanned downtime
    c. Live migration of VM for load balancing

d. Service outage by planned downtime.

Ans: c

Ques 5: An application experiencing ------------------ is less likely to benefit from an elastic cloud that offers a pay-per-use billing, because the number of required resources is constant.

a. Flat-Rate Bias
b. Service models
c. Static Workload
d. Loose Coupling

Ans: c

Ques 6: A company must perform a complex analysis for a client and their computer systems do not have the computation capacity to perform this analysis. How can this analysis be completed quickly and cost effectively?

a. Order new hardware to boot computational power
b. Consolidate the existing hardware to find requires computational capacity
c. Virtualize existing hardware to extract efficiency and utilize the extra capacity
d. Temporarily access computational power on demand from a cloud service provider

Ans: d

Ques 7: How can a company leverage the Platform as a service cloud computing delivery model?

A. A company obtains an environment with a software stack from a cloud provider, develops a custom application and makes that application available to its customers on the Internet.
B. A company is running out of storage space to store a customer database and dynamically requets additional space via the cloud provider web services interface.
C. A company requires more processing power to perform its financial analysis calculation and acquires additional computational resources.
D. Acompany requires a customer relationship management solution and obtains an application that addresses their requirements from a cloud provider.

Ans: A

Ques 8: Which of the following is a system for creating block level storage devices that can be used for Amazon Machine Instances in EC2?

a) CloudWatch

b) Amazon Elastic Block Store

c) AWS Import/Export

d) All of the mentioned

Ans: b

Ques 9: When choosing which applications or databases to place on one physical machine -- using a virtual machine for each application -- it is best to:

i) Choose a mixture of applications and databases with different workloads (some light, some heavy).

ii) Keep all the heavy-workload applications and databases together and all the light-workload applications and databases together.

A. i only

B. ii only

C. I and ii both

D. None of them

Ans: a

2 mark Questions

Ques 1: Your company runs a virtualized web application server in-house. You decide to make the web applications available over the Internet through a cloud provider. Which method represents the quickest way to accomplish this?

 A. Create a new cloud server, install web services, and install and configure web applications.

 B. Create a new cloud server, install web services, and import web application data.

 C. Migrate your in-house web application server to the cloud.

 D. This cannot be done — only generic applications are available through the cloud.

Ans: c

Ques 2: For which businesses would cloud computing be best suited? (Choose two.)

 A. Waterfront marketplace that thrives during the summer tourist season

 B. Rural medical practice with four employees

 C. Law enforcement agency

 D. A new company start-up that manufactures watercraft

Ans: A and D

Ques 3: A company operates data centers in two different regions. Energy costs for one of the data centers increases during the warmer, summer months. The company already uses server virtualization techniques in order to consolidate the total number of required resources. How might the company further reduce operating costs at this data center?

A. The company can shut down the data center in the summer season.

B. The company does not need to do anything because they are already using server virtualization techniques.
C. The company can leverage provisioning to optimize the availability of their environments in the summer season.
D. The company can further leverage virtualization to easily and quickly move as many assets from the data center in the warmer region to the data center in the cooler region during the summer season.

Ans: D

Ques 4: A company has peak customer demand for its IT services in the month of April. It has enough IT resources to handle off peak demand but not peak load. What is the best approach to handle this situation?

A. Outsource all of IT services to a cloud based provider.
B. Virtualize its servers and implement a cloud based system.
C. Utilize an external cloud service provider to handle the peak load.
D. Acquire additional IT resources and design the system to handle the peak load.

Ans: C

Ques 5: You are a software tester that is testing a complex application that is running within a single virtual machine. You have recently encountered a rare and intermittent software defect that developers have been unable to reproduce or troubleshoot in the past. Which of the following steps should you take to allow developers to recreate the issue?

a. Power off the virtual machine and discard any saved state information.

b. Save the state of the virtual machine and provide a copy of it to your developers to troubleshoot the problem.

c. Roll back the state of the virtual machine to a point in time prior to when the defect was discovered.

d. Move the virtual machine to another host server to which developers have access.

Ans :b

Ques 6: Which of these should a company consider before implementing cloud computing technology?

   A. Employee satisfaction

   B. Potential cost reduction

   C. Information sensitivity

   D. All of the above

   Ans :D

Ques 7: A company needs to provide IT service to a worldwide customer base utilizing a diverse set of devices. What attribute of Cloud computing can help the company deliver such services?

   a. Flexible Pricing

b. Horizontal scaling of application servers
c. Pervasiveness
d. Vertical Scaling of application servers

Ans: c

Ques 8: Four different companies provide Storage as a Service capabilities.

Company A stores user data in its primary data center in New York and replicates the data to a backup data center in New York.

Company B stores user data in its primary data in Chicago and replicates the data to a backup data center in Atlanta.

Company C stores user data in its primary data in Los Angeles and store replicas in the same data center.

Company D stores user data in its primary data center in St. Louis and does not replicate the data

Which company is likely to provide highest availability?

a. Company A
b. Company B
c. Company C
d. Company D

And: b

Ques 9: Application developers and testers are required to routinely setup complex multitiered application environments to complete their tasks. How can provisioning capabilities in a cloud computing solution improve setup efficiencies?

A. It reduces the complexity of the application environments.
B. It allows the employees to reduce the number of managed servers.
C. It allows the employees to capture complex environments and set them up in a consistent manner.
D. It reduces the number of application environments to set up.

Ans: c

Ques 10: A company currently experiences 8 to 10 percent utilization of its development and test computing resources. The company would like to consolidate to reduce the number of total resources in their data center and decrease energy costs. Which feature of cloud computing allows Resource consolidation?

a. Automation

b. Elasticity

c. Provisioning

d. Virtualization

Ans: d