CLOUD COMPUTING QUESTION BANK 2019-20

UNIT 1: CHAPTER 1	
1.	Give an overview of vision of cloud computing.
2.	Define and explain the term cloud computing.
3.	State and explain the benefits of cloud computing giving practical examples.
4.	Discuss the different cloud deployment models.
5.	Explain the cloud computing reference model with the help of a diagram.
6.	State and explain the characteristics and benefits of cloud computing to cloud consumers and cloud providers.
7.	Discuss the challenges in development of cloud computing.
8.	What are distributed systems? What are the major milestones which led to development of cloud computing? Explain.
9.	What is virtualization? Explain.
10.	Explain Web 2.0.
11.	What is service oriented computing? What are the two important concepts of service oriented computing? Explain.
12.	Explain utility oriented computing in detail.
13.	Explain the development of applications that leverage cloud computing benefits.
14.	Explain the following computing platforms and technologies: i. Amazon Web Services ii. Google App Engine iii. Microsoft Azure iv. Hadoop v. Force.com and salesfore.com vi. Manjrasoft Aneka
15.	How is cloud development different from traditional software development?
UNIT 1: CHAPTER 2	
16.	Compare parallel and distributed computing.
17.	What is parallel processing? What are the factors influencing development of parallel processing?
18.	Discuss the different hardware architectures for parallel processing.
19.	Discuss the different approaches to parallel programming.
20.	What are the different levels of parallelism? Explain.
21.	State and explain the relation between i. Speed of computation and system cost and ii. Speed of parallel computer and number of processors.
22.	What are the components of distributed system? Explain.
23.	What are architectural styles? Explain.
24.	What are components and connectors? Explain.
25.	Discuss the different software architectural styles.
26.	Explain data centered architecture.
27.	Explain data-flow architecture.
28.	Explain virtual machine architecture.
29.	Explain call and return architecture.
30.	Discuss the different system architectural styles.
31.	Explain client-server architecture.

32.	Explain peer-to-peer architecture.
33.	What are the different models for interprocess communication? Explain each in brief.
34.	Explain message based communication.
35.	What are the different models for messaged based communication? Explain.
36.	Explain remote procedure call in detail.
37.	What is the common interaction pattern in RPC model? Explain.
38.	With the help of a diagram, explain the distributed system programming model.
39.	Explain the Common Object Request Broker Architecture.
40.	Explain the distributed component object model.
41.	Explain Java Remote method invocation.
42.	Explain .NET remoting.
43.	What is a service? What are the characteristics that identify a service?
44.	Explain the service oriented architecture.
45.	Enumerate the guiding principles that characterize SOA platforms.
46.	What are web services? Explain.
UNIT 1: CHAPTER 3	
47.	What is virtualization? What are the reasons leading to motivation of virtualization technology? Explain.
48.	What are the major components of virtualized environment? Explain their characteristics.
49.	How does virtualized environment increase security? Explain.
50.	Explain the following features of virtualization of execution environment: sharing, aggregation, emulation and isolation.
51.	With the help of a diagram, explain taxonomy of virtual machines.
52.	What are process virtual machines? Explain.
53.	What are system virtual machines? Explain.
54.	Compare process virtual machines and system virtual machines.
55.	Explain the machine reference model.
56.	Explain the security rings and privilege modes.
57.	What is hardware level virtualization? Explain.
58.	Explain the hypervisor reference architecture.
59.	Explain the following theorems: i. For any conventional third-generation computer, a VMM may be constructed if the set of sensi- tive instructions for that computer is a subset of the set of privileged instructions. ii. conventional third-generation computer is recursively virtualizable if: • It is virtualizable and • A VMM without any timing dependencies can be constructed for it. iii. A hybrid VMM may be constructed for any conventional third-generation machine in which the set of user-sensitive instructions is a subset of the set of privileged instructions.
60.	Explain hardware-assisted virtualization, full virtualization, para virtualization and partial virtualization.
61.	What is operating system level virtualization? Explain.
62.	Explain programming language-level virtualization.

63.	Explain Application-level virtualization.
64.	Explain storage virtualization, network virtualization, desktop virtualization and application server virtualization.
65.	What is server consolidation? Explain the process of live migration.
66.	Discuss the advantages and disadvantages of virtualization.
67.	Explain the Xen: Para virtualization.
68.	Explain the VMWare: Full virtualization.
69.	Explain the architecture of VMWare workstation.
70.	Explain the architecture of VMWare GSX server.
71.	Explain the architecture of VMWare ESXi Server.
72.	With the help of a diagram, explain the VMWare Cloud solution stack.
73.	Explain the Hyper-V architecture.
74.	Explain cloud computing and infrastructure management with reference to Microsoft Hyper-V.
UNIT 2: CHAPTER 4	
75.	What is cloud computing? With the help of a diagram, explain the cloud computing architecture.
76.	Explain the Infrastructure as a service reference implementation.
77.	With the help of a diagram, explain the platform as a service reference model.
78.	Enumerate the characteristics that identify a PaaS solution.
79.	What is Software as a service model? What are its core characteristics identified by Application Service providers? Explain.
80.	What are the different types of clouds? Explain each type in brief.
81.	What are public clouds? Explain.
82.	What are private clouds? Explain.
83.	What are hybrid clouds? Explain.
84.	What are community clouds? Explain. What are benefits of community clouds?
85.	Discuss the economics of cloud.
86.	What are the different pricing strategies adopted by cloud service providers? Explain.
87.	Discuss the open challenges for industry and academic in cloud computing.
UNIT 2: CHAPTER 6 (Book 2)	
88.	Explain the following security principles with respect to cloud computing: confidentiality, Integrity, Authenticity, Availability.
89.	Explain the following security terms with respect to cloud computing: threat, vulnerability, risk, security controls, security mechanisms, security policies.
90.	Explain the following: threat agents, anonymous attacker, malicious service agent, trusted attacker, malicious insider.
91.	What are different cloud security threats? Explain each in brief.
92.	With the help of a diagram, explain traffic eavesdropping.
93.	With the help of a diagram, explain malicious intermediary.
94.	With the help of a diagram, explain denial of service.
95.	With the help of a diagram, explain insufficient authorization.
96.	What s virtualization attack? Explain.
97.	Discuss the overlapping of trust boundaries.

98.	Discuss the following issues with cloud security: flawed implementations, security policy disparity, contracts, risk management,
UNIT 2: CHAPTER 9	
99.	Give few examples of cloud computing service offerings.
100.	With the help of a diagram, explain the web services ecosystem.
101.	What are EC2 instances? Explain the categories of EC2 instances.
102.	Explain the EC2 environment.
103.	Explain the following with respect to AWS: AWS cloudformation, AWS elastic beanstalk, Amazon elastic mapreduce.
104.	What are the different storage services offered by AWS? Explain each in brief.
105.	Explain the Amazon simple storage service.
106.	Explain buckets, objects and metadata with respect to Amazon S3.
107.	Explain Access control and security with respect to Amazon S3.
108.	Explain the Amazon elastic block store and Amazon elastic cache.
109.	What are the structured storage solutions offered by Amazon? Explain.
110.	What is Amazon CloudFront? Explain in detail.
111.	What are the communication services provided by AWS? Explain.
112.	Explain the three messaging services offered by AWS.
113.	Explain the Amazon CloudWatch and Amazon Flexible Payment service.
114.	Explain the Google App Engine platform infrastructure.
115.	Explain the Google App Engine runtime environment.
116.	What are the different types of storage provide by Google App Engine? Explain.
117.	State and explain the different application services offered by GAE.
118.	Explain the compute services offered by GAE.
119.	Explain the application development and testing for GAE.
120.	How are application deployed and managed on GAE? Explain.
121.	Explain the GAE cost model.
122.	What is Microsoft Azure? Explain the Microsoft Azure architecture.
123.	Explain the compute services offered by Microsoft Azure.
124.	Explain the storage services offered by Microsoft Azure.
125.	Explain the Microsoft Azure AppFabric.
126.	Explain the following Microsoft Azure Services: virtual network, content delivery network.
127.	What is SQL Azure? Explain its architecture.
128.	Explain the Microsoft Azure platform appliance.
UNIT 3: CHAPTER 8 (Book 2)	
129.	What are different specialized cloud mechanisms? Explain each in brief.
130.	What is automated scaling listener? How is it used in cloud computing? Explain.
131.	Explain load balancer and its use in cloud service.
132.	Discuss the SLA monitoring mechanism for cloud service.
133.	What is pay-per-use monitor? What are variables to be monitored? How is it used in cloud service? Explain.
134.	Explain the audit monitor and its use in cloud computer.
135.	What is failover mechanism? Explain the two basic configurations of failover systems.
136.	Explain the hypervisor mechanism.

137.	What is resource cluster? Explain the common resource cluster types.
138.	What is multi-device broker? How and where do they exist? Explain.
139.	Explain in detail, the state management database.
UNIT 3: CHAPTER 9 (Book 2)	
140.	What are the different cloud management mechanisms? Explain each in brief.
141.	Explain the remote administration system.
142.	What are the different types of portals created with remote administration system? Explain. What are the different types of tasks performed via remote administration console?
143.	Explain the resource management system.
144.	What is SLA management system? Explain.
145.	Explain the billing management system.
UNIT 3: CHAPTER 10 (Book 2)	
146.	Explain encryption as cloud security mechanism. What are two forms of encryption? Explain.
147.	What is hashing? How is it applied to maintain integrity of message in cloud computing?
148.	What id digital signature? How is it used in cloud computing? Explain.
149.	What is public key infrastructure? With the help of a diagram, explain the steps involved during generation of digital certificates by certifying authority.
150.	What is identity and access mechanism? Explain its four main components.
151.	What is single sign-on? Explain in detail.
152.	Explain cloud based security groups.
153.	What is hardened virtual server image? Explain its use in cloud computing.
UNIT 4: CHAPTER 11 (Book 2)	
154.	What are the fundamental cloud architectures? Explain each in brief.
155.	Explain the workload distribution architecture.
156.	Explain the Resource Pooling Architecture.
157.	What are the mechanisms that can be part of Resource Pooling Architecture? Explain.
158.	Explain the Dynamic Scalability Architecture.
159.	Explain the Elastic Resource Capacity Architecture.
160.	Explain the Service Load Balancing Architecture.
161.	Explain the Cloud Bursting Architecture.
162.	Explain the Elastic Disk Provisioning Architecture.
163.	Explain the Redundant Storage Architecture.
UNIT 4: CHAPTER 12 (Book 2)	
164.	What are the different advanced cloud architectures? Explain each I brief.
165.	Explain the Hypervisor Clustering Architecture.
166.	Explain the Load Balanced Virtual Server Instances Architecture.
167.	Explain the Non-Disruptive Service Relocation Architecture.
168.	Explain the Zero Downtime Architecture.
169.	Explain the Cloud Balancing Architecture.
170.	Explain the Resource Reservation Architecture.
171.	Explain the Dynamic Failure Detection and Recovery Architecture.
172.	Explain the Bare-Metal Provisioning Architecture.

173.	Explain the Rapid Provisioning Architecture.
174.	Explain the Storage Workload Management Architecture.
UNIT 5: CHAPTER 14 (Book 2)	
175.	Explain the building of the IaaS environment from the cloud provider's perspective.
176.	What are the different capabilities of the IaaS platform that involve monitoring? Explain.
177.	Discuss the different cloud security mechanisms relevant for securing IaaS environment.
178.	How are PaaS environments equipped from cloud service provider's perspective? Explain. Discuss the scalability and reliability in PaaS.
179.	What are the specialized cloud usage monitors used to monitor in PaaS environments? Explain.
180.	What are the optimizations needed in SaaS environments from cloud provider's perspective? Explain.
181.	What are the two common options to access virtual servers at OS level? Explain the different formats for the manipulation and transmission of cloud storage data.
182.	Discuss the different IT resource provisioning considerations in IaaS environments from cloud consumer's perspective.
183.	Discuss the different IT resource provisioning considerations in PaaS environments from cloud consumer's perspective.
184.	Explain working with SaaS services from cloud consumer's perspective.
UNIT 5: CHAPTER 15 (Book 2)	
185.	State, explain and compare the upfront and on-going costs for on-premise IT resources and leasing cloud IT resources.
186.	What are the additional costs to be considered beyond upfront and on-going costs? Explain.
187.	Describe the set of usage cost metrics for calculating costs associated with cloud-based IT resource usage measurements.
188.	"Cost management is often centered around the lifecycle phases of cloud services" Discuss.
189.	What are the factors that influence pricing models? What are the variables that determine the formulation of price templates? Explain.
190.	Discuss the different pricing models or different cloud delivery models. What are the additional considerations to be taken into account? Explain.
UNIT 5: CHAPTER 16 (Book 2)	
191.	What are service quality metrics? Explain.
192.	Explain service availability metrics.
193.	Explain service reliability metrics.
194.	Explain service performance metrics.
195.	Explain service scalability metrics.
196.	Explain service resiliency metrics
197.	Discuss the various best practices and recommendations for working with service level agreements.