

JULY 2021: END SEMESTER ASSESSMENT B Tech CSE5th SEMESTER

UE18CS352 –CLOUD COMPUTING

Time: 3 Hrs	Answer All Questions	Max Marks: 100
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1	a)	The International Data Corporation has found that 80% of organisations have moved applications out of public cloud and back to private cloud. Why are companies moving certain applications and workloads back to private cloud? What are the issues you might encounter if you go “all in” with public cloud?	5
	b)	Imagine if you are developing the back-end service for a website like codechef which provides users with coding problems and evaluates them against test cases. The solutions to the problems can be in multiple programming languages and the traffic on the website can vary from time to time. When creating such a web-service, which deployment strategy do you use on-site servers, Iaas, Paas? and why ?	5
	c)	Consider a web application for building a BookShop using a web application. Your shop should support : <ul style="list-style-type: none"> Retrieve book details like price, recommendations. Adding a book to a shopping cart. Like a book Sending recommendation of a book to a friend Deleting a recommendation for a book. List out the resources for your application and the representations if you would like to see the data in JSON format. What should be the Accept syntax	5
	d)	What are the steps associated to break a Monolith into Microservices? What difficulties are associated with this?	5
2	a)	What is Virtualization? Explain the pros and cons of Virtualization.	5
	b)	Mark as True or False <ol style="list-style-type: none"> The x86 architecture originally contained instructions that were nonvirtualizable using trap-and-emulate virtualization Shadow page tables store the mappings from guest physical to host physical memory addresses. On a Type 2 VM, a software interface is created that emulates the devices with which a system would normally interact In the Kubernetes architecture, all these components are part of the Master node: API Server, etcd storage, scheduler and kubelet Docker container provides Hardware-level process isolation while Virtual Machine provides OS level process isolation 	5
	c)	Explain any 3 advantages and any 2 disadvantage of UnionFS	5
	d)	Explain why DevOps is Needed? How is DevOps different from traditional software development and Operations process?	5

3	a)	What is storage virtualization? Explain categories of storage virtualization.	5
	b)	What is rebalancing of partitions? Explain various approaches for rebalancing partitions	5
	c)	Explain Leader based replication technique	5
	d)	Explain “ Linearizability ” in data replication	5
4	a	What is a “fault-tolerant” system? If a service was unavailable for 20 minutes in 24 hours due to 2 failures, what is the uptime, MTBF and MTTR of that service?	5
	b	Explain Failover Architecture Hint: Active/Active and Active/Passive failover	5
	c)	Explain modified ring “leader election” algorithm	5
	d)	What is Apache Zookeeper? How does it work?	5
5	a	Explain the terms mentioned below from a cloud security perspective <ul style="list-style-type: none"> 1. Cloud Time Service 2. Identity Management 3. Access Management 4. Break Glass Procedures 5. Key Management 	10
	b)	Explain the following Keystone concepts <ul style="list-style-type: none"> 1. Roles 2. Assignment 3. Targets 4. Tokens 5. Catalog 	10