Hall Ticket Number:

Code No. : 17256 N/O

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (C.S.E. & AIML) VII-Semester Main & Backlog Examinations, Dec.-23/Jan.-24

Distributed Systems and Cloud Computing

Time: **3 hours** Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Why are SLAs important for both cloud service providers and customers?	2	1	1	1,2
2.	How does cloud computing differ from traditional on-premises computing?	2	2	1	1,2
3.	What are the benefits of using virtual machines in data centers and cluster environments?	2	2	2	1,2
4.	What is the role of a cluster manager in virtualized data center environments?	2	3	2	1,2
5.	How does container-based virtualization differ from traditional virtualization with virtual machines (VMs)?	2	2	3	1,2
6.	What is the role of Virtctl in managing VMs with KubeVirt?	2	4	3	1,2
7.	What are the key features that distinguish cloud computing from grid computing?	2	2	4	1,2
8.	What programming languages and tools are supported for developing applications in Google Cloud?	2	3	4	1,2
9.	What is edge computing, and how does it differ from cloud computing?	2	1	5	1,2
10.	What is multi-cloud architecture, and what are the benefits of using multiple cloud providers?	2	2	5	1,2
	Part-B (5 × 8 = 40 Marks)				
11. a)	Explain the differences between public, private, and hybrid clouds in the context of cloud computing.	4	2	1	1,2
b)	Describe some common metrics and parameters that are typically included in cloud SLAs.	4	2	1	1,2
12. a)	Describe the different levels at which virtualization can be achieved and discuss the relative merits of each level of virtualization.	4	1	2	1,2
b)	Discuss the need for virtual machine migration and explain the step by step procedure to perform the migration from one host to another host with a neat diagram.	4	3	2	1,2
13. a)	Explain the role of Docker in container-based virtualization. How does it simplify container management?	4	3	3	1,2
b)	Explain the concept of "event-driven" computing in the context of AWS Lambda and Azure Functions.	4	2	3	1,2

Contd... 2

14. a)	Describe the essential characteristics of a cloud computing model.	4	1	4	1,2
b)	What is the Hadoop distributed file system, and how does it support data storage in a distributed environment? Explain.	4	3	4	1,2
15. a)	How can you ensure security and reliability in load balancing configurations with HAProxy? Explain.	4	2	5	1,2
b)	Explain about Consensus related problems in distributed system and discuss how they can be resolved.	4	3	5	1,2
16. a)	Differentiate between High Performance Computing and High Throughput Computing and explain the evolutionary trend towards parallel, distributed and cloud computing.	4	3	1	1,2
b)	Discuss in detail about CPU Virtualization and Memory Virtualization.	4	1	2	1,2
17.	Answer any ***two*** of the following:				
a)	Explain the main components of a Kubernetes cluster.	4	2	3	1,2
b)	Compare and contrast the key services and offerings of Amazon Web Services and Microsoft Azure.	4	3	4	1,2
c)	Consider the given trust matrix for a peer to peer system with five nodes and global reputation scores v(t)={0.65,0.32,0.50, 0.22,0.25} of each node at time 't'. Calculate global scores of each node and find the normalized global reputation vector. M(t)=	4	3	5	1,2

0	0	0	0.4	0.6
0.4	0	0.2	0.1	0
0.2	0	0	0	0.8
0	0	0	0	0.2
0	0	0.4	0.2	0

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	37.5%
iii)	Blooms Taxonomy Level – 3 & 4	42.5%

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