Printed page: 02…. **Subject Code: AMTCSE0111**

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY ,GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MASTER OF TECHNOLOGY (M. Tech)

(SEM: 1st Theory Examination (2020-2021)

Subject Name: CLOUD COMPUTING

Time: 3 Hours **Max. Marks:70**

General Instructions:

- All questions are compulsory. Answers should be brief and to the point.
- This Question paper consists of …02……..pages & …8……..questions.
- It comprises of three Sections, A, B, and C. You are to attempt all the sections.
- Section A -Question No- 1 is objective type questions carrying 1 mark each, Question No- 2 is very short answer type carrying 2 mark each. You are expected to answer them as directed.
- Section B - Question No-3 is Long answer type -I questions with external choice carrying 4marks each. You need to attempt any five out of seven questions given.
- Section C -Question No. 4-8 are Long answer type –II (within unit choice) questions carrying 7marks each. You need to attempt any one part *a* or *b.*
- Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
- No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION – A

1.	**Answer all the parts**		**[5x1=5]**	**CO**
a.	The main design and implementation challenge in Cloud Computing model is: (a) Resource sharing. (b) Scalability. (c) Fault Tolerance (d) Heterogeneity		**(1)**	**CO1**
b.	Virtualization technique in which the Operating System gets modified is known as: (a) Full Virtualization (b) Hypervisor (c) Para Virtualization (d) None of the above		**(1)**	**CO2**
c.	Simple Storage Service (S3) belongs to: (a) IaaS (b) PaaS (c) SaaS (d) All of the above		**(1)**	**CO3**
d.	The main design challenge and concerns shown by cloud users in on-demand cloud model is: (a) Security (b) Availability (c) Performance (d) Integration		**(1)**	**CO4**
e.	Amazon's EC2 offers the following service to the cloud users: (a) PaaS (b) SaaS (c) IaaS (d) All of the above		**(1)**	**CO5**

2.	**Answer all the parts-**		**[5×2=10]**	**CO**
	a.	What are the possible deployment models in cloud computing? Briefly explain each of them.	**(2)**	**CO1**
	b.	Binary codes generated are processor (machine) dependent, i.e., it cannot be ported to another hardware. Is there any way out to port the same binary code to another hardware without modifying the legacy binary code? How?	**(2)**	**CO2**
	c.	What is Hybrid Cloud? Why is it required?	**(2)**	**CO2**
	d.	What is Virtual Machine? What are the advantages of creating Virtual Machines?	**(2)**	**CO3**
	e.	What is cloud federation? What is the purpose of cloud federation?	**(2)**	**CO5**
		SECTION – B		**CO**
3.	**Answer any five of the following-**		**[5x4=20]**	
	a.	What are the foundational elements of cloud computing? Give a brief explanation about each.	**(4)**	**CO1**
	b.	How virtualization is implemented at Operating System level? What are the advantages and disadvantages of OS level virtualization?	**(4)**	**CO2**
	c.	What is the fundamental difference between Platform as a Service and Software as a Service?	**(4)**	**CO3**
	d.	How is Fog Computing different than Cloud Computing? How Fog computing helps in improving the overall performance of the systems?	**(4)**	**CO5**
	e.	What are the main components of Open Stack? Briefly explain each one of them.	**(4)**	**CO5**
	f.	What are the security issues in Cloud? How Virtual machines can be secured?	**(4)**	**CO4**
	g.	What is Web Services Description Language (WSDL)? Explain.	**(4)**	**CO2**
		SECTION – C		**CO**
4	**Answer any one of the following-**		**[5×7=35]**	
	a.	Question- What is the fundamental difference between Full Virtualization and Para Virtualization? Give the example of Virtual Machine Monitor where these techniques are practically implemented.	**(7)**	**CO2**
	b.	Question- What are Web Services? What are web service architectural models? How Publish-Subscribe model works?	**(7)**	**CO2**
5.	**Answer any one of the following-**			
	a.	What is Virtual Machine Control Structure (VMCS)? How does VMCS handle the root and non-root mode operations?	**(7)**	**CO3**
	b.	What are the challenges in memory virtualization? How these challenges are addressed?	**(7)**	**CO3**
6.	**Answer any one of the following-**			
	a.	What is live Migration? What are the steps involved in live migration?	**(7)**	**CO3**
	b.	What is the difference between Virtual clusters and Physical clusters? Explain.	**(7)**	**CO3**
7.	**Answer any one of the following-**			
	a.	Compare and contrast between the security measures that are implemented in Google App Engine, Amazon EC2 and Microsoft Azure.	**(7)**	**CO4**
	b.	Give the detailed features of Eucalyptus Cloud Platform mentioning the technical details and their functionalities.	**(7)**	**CO5**
8.	**Answer any one of the following-**			
	a.	Consider AWS: What is the fundamental difference between Simple Storage Service (S3) and Elastic Block Service (EBS)? Also mention the advantages and disadvantages of these two storage techniques.	**(7)**	**CO5**
	b.	Give an example case study where Python and Java programming will be best suited for developing an application on Google App Engine. Also logically justify the reasons for your choice.	**(7)**	**CO5**