

**DEPARTMENT OF CSE, NIT-ROURKELA**  
**End Term Autumn Examination 2021**

SUBJECT: **Cloud Computing**

CODE: **CS 6218**

**FULL MARKS: 40+10**

Duration of Examination: **2 Hours**

**6<sup>th</sup> December 2021(Monday) 3-5PM**

**[Answer any five from the following]**

**All question should be answered by own hand writing and uploaded to MS team**

**[Start time 3.00PM, Finish time 4.30PM, Upload on or before 4.45PM]**

**[Quiz Start Time-4.50PM, Close Time 5.20PM]**

- [01] Software licensing is a major problem in cloud computing. Discuss several ideas to prevent an administrator from hijacking the authorization to use a software licence. What is Software asset management (SAM)? Why it is desirable?
  
- [02] Virtualization is the creation of a virtual (rather than actual) version of something, such as an operating system, a server, a storage device or network resources. What are the different types of Virtualization in Cloud Computing? What is the necessity of data virtualization? What is Data Virtualization Layer and why layering of data virtualization is necessary? Discuss the benefits of Data Virtualization?
  
- [03] A cloud service provider, or CSP, is a company that offers some component of cloud computing. What are the components offered by CSP to users over internet? Define and differentiate between the responsibility of a cloud user and the CSP? Outline the Seven Rights and Responsibilities required for Cloud Computing Services.
  
- [04] **Virtualization** is the creation of virtual servers, infrastructures, devices and **computing** resources. Describe four benefits of virtualization. Why are VMMs unable to implement trap-and-emulate-based virtualization on some CPUs? Lacking the ability to trap and emulate, what method can a VMM use to implement virtualization? Explain three problems which you must consider before using virtualization technology?
  
- [05] Describe the three types of traditional hypervisors. Describe four virtualization-like execution environments, and explain how they differ from “true” virtualization. What hardware assistance for virtualization can be provided by modern CPUs? How interrupt is managed by virtual machine?
  
- [06] What is Cloud Storage? How Does Cloud Storage Work? What are the different types of Cloud Storage? Explain the basic concept of Redundant Array of Cloud Storage (RACS). What are the benefits of storage visualization?

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- [07] What are the containers? Explain the concept of container virtualization? Why containers are preferred over virtual machine? What is the use of container engine, how this is used to create a microservice ecosystem
- [08] Security virtualization is the shift of security functions from dedicated hardware appliances to software that can be easily moved between commodity hardware or run in the cloud. What is Virtual machine security? Discuss the role of Virtual Machine Monitor in this context? List the various security benefits of VM.
- [09] Virtualization simplifies the use of resources, isolates users from one another, supports replication and mobility, but exacts a price in terms of performance and cost. Analyse each one of these aspects for: (i) memory virtualization, (ii) processor virtualization, and (iii) virtualization of a communication channel.
- [10] XYZ Ltd is a small and medium enterprise operating in the accounting industry in Mauritius. You are working for ABC Ltd, a cloud services provider and your task is to convince XYZ Ltd to use cloud computing. Explain to the director of XYZ Ltd, with reference to potential use of IT for XYZ Ltd, four main characteristics of using cloud computing.

-----Submit your answer on or before 4.45PM-----

**Instruction:**

- The examination is hand written close book examination, followed by a Quiz test [MCQ].
- The examination will be in two part [40+10] marks], Assignments will be available with MS team (code **31pnxml**)
- Write your Name and Roll number clearly in top of your answer sheet.
- You have to upload the scan copy of your hand written answer sheet (pdf format only ) in MS team (appropriate assignment) on or before **4.45PM**.
  
- Rename your submission file as Rollno\_CC; the student with roll no 117CS0246 has to rename the answer file for the Question as **117CS0246\_CC**.
- Call me on 9937324437 or 9337938766 for any assistance during the examination. My E-mail id is [bdsahu@nitrkl.ac.in](mailto:bdsahu@nitrkl.ac.in), [bibhudatta.sahoo@gmail.com](mailto:bibhudatta.sahoo@gmail.com).

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