**Birla Institute of Technology & Science, Pilani**

**Work-Integrated Learning Programmes Division**

**Second Semester 2020-2021**

**Comprehensive Examination**

**(EC-3 Regular)**

Course No. : CSI ZG527

Course Title : CLOUD COMPUTING

Nature of Exam : Open Book

No. of Pages = 2

# No. of Questions = 9

Weightage : 50%

Duration : 2 Hours

Date of Exam : Sunday, 02/05/2021 (AN)

Note:

1. Please follow all the *Instructions to Candidates* given on the cover page of the answer book.
2. All parts of a question should be answered consecutively. Each answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.
4. Assume that one of your colleagues comments that “Cloud is not suitable for enterprises where there are a large number of users.” Do you agree with his comment or not?. If so, justify your answer. [4]
5. What are the benefits of a private cloud?. Provide two use cases of a private cloud and explain why enterprises need a private cloud rather than a public one. [6]

1. What is the role of a hypervisor in virtualization? And discuss any four issues of virtualization. Also, mention the need for Full virtualization and Para Virtualization. [6]
2. Explain how interoperability is achieved using Microsoft Azure between on-premise applications and cloud-based applications. [6]
3. What is Chef?. Explain the difference between a Cookbook and Recipe in Chef. Provide two use cases of Chef [6]
4. Assume that a cloud customer wants to migrate all his/her employee data and related HR processing such as payroll, tax calculations, vacation approvals, etc., to a public cloud service provider. The customer wants that all the related HR applications are accessed by the authorized users only. Explain the steps involved in migrating employee’s data and the related HR processing to a public cloud such that all the customer requirements would be met. [6]

1. Assume that an organization has some sensitive information to be outsourced to the servers of any Cloud Service Providers (CSP). In this scenario, how do you assure the confidentiality of this information from both the internal and external attackers? Suggest at least two approaches for each of the attacker types and justify how they guarantee confidentiality. [6]
2. Placement statistics of a university are provided in the below table for the academic year 2020-2021. Find out the number of students placed in each department using the MapReduce programming model. Explain the sequence of steps involved in solving this problem using MapReduce. [6]

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| --- | --- | --- | --- | --- |
| **Sid** | **Sname** | **Department** | **Company\_Name** | **Package** |
| CS100001 | Aruna | ECE | Google | 30L |
| EC100001 | Suprava | ECE | Facebook | 23L |
| EE100001 | Vishal | EEE | Norton | 16L |
| CS100002 | Pruthvi | CSE | Microsoft | 18L |
| CS100003 | Vikas | CSE | Google | 30L |
| EC100002 | Arjun | CSE | Facebook | 23L |

1. Why Hadoop Distributed File System (HDFS) blocks are large compared to disk blocks?. Also, explain the difference between HDFS and Network Attacked Storage. [4]

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