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

**Work-Integrated Learning Programmes Division**

**First Semester 2022-2023**

**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 = 12

Weightage : 50%

Duration : 2½ Hours

Date of Exam : Sunday, 27/11/2022 (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. HDFS blocks default to 128MB in size, although this is configurable by the client or the server. Files are split into blocks upon ingestion into HDFS. Answer the below questions with diagrams for a 1 GB file ingestion into HDFS. State your assumptions clearly.

* 1. List Number of HDFS Blocks for the given file. How will blocks be distributed among slave nodes (assume 5 node cluster)? [2 Marks]
  2. How are Blocks replicated based on replication factor? How is block failure recovery handled for your configuration? [2 Marks]
  3. Describe the roles of Name node and Data Node. [2 Marks]
  4. List the steps of Reading and Writing Files in HDFS. [2 Marks]

1. Write a Docker file to create and copy a directory and built it using python modules.

[4 Marks]

1. Describe in detail what is SLA, SLO and SLI and how they are integrated to support cloud services [4 Marks]
2. Explain in detail about virtual threats and limitation of virtualization in cloud computing. [5 Marks]

### **What are the different service models in cloud computing? [3 Marks]**

### Why is Docker the new craze in virtualization and cloud computing? [3 Marks]

### Name advantages and disadvantages of using serverless components in cloud computing. [4 Marks]

1. Mention some optimization strategies in the cloud. [3 Marks]

### What is the uptime guarantee and is the SLA stacked? [4 Marks]

### What Are Some of the Security Best Practices for Amazon EC2? **[3 Marks]**

### Name some of the AWS services that are not region-specific **[3 Marks]**

### **Explain in detail cloud capacity management building blocks. [6 Marks]**

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