PRESIDENCY UNIVERSITY
BENGALURU

SET A

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2024

Semester : Semester V - 2021
Course Code : CSE2013
Course Name : Cloud Computing
Program : B.Tech. Computer Science and Engineering

Date : 04-JAN-2024
Time : 9:30AM - 12:30 PM
Max Marks : 100
Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS   **4 X 5M = 20M**

1. Discuss about the different types of virtualization.

(CO1) [Knowledge]

2. Illustrate and explain the machine reference model with ISA security class and rings.

(CO2) [Knowledge]

3. Identify the mechanism that is used when a one-way, non-reversible form of data protection is required. elaborate on its applications and use cases with diagrams.

(CO3) [Knowledge]

4. Help Arun to find out which programming framework that allows him to perform distributed and parallel processing on large data sets in a distributed environment and discuss about its working by a word count example.

(CO4) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS   **5 X 10M = 50M**

5. Virtualization is a method of logically dividing the system resources between different applications, Discuss the major components of the same with a neat diagram and explain its characteristics.

(CO1,CO2) [Comprehension]

6. Computing platforms and technologies are the ones that provide the distribution of computing resources as a service. Provide a concise overview of computing platforms and technologies with five core technologies and three major milestones.

(CO2,CO1) [Comprehension]

7. Virtualization of the processor combined with virtual memory management poses multiple challenges in VMM. Analyze the interaction of interrupt handling and paging.
   A. Illustrate the main modules in VMM with neat sketches
   B. Describe types of hypervisor architectures.

   (CO2,CO4,CO3) [Comprehension]

8. You are a DevOps engineer responsible for managing the infrastructure of a media streaming service. The service experiences varying levels of demand throughout the day, with peak usage during evening hours. Your goal is to enhance the scalability and responsiveness of the service by implementing auto-scaling mechanisms. The application uses a microservices architecture, and there is a critical listener service that handles incoming user requests. Describe how you would design an auto-scaling mechanism for the listener service, considering factors such as scalability, performance, and cost-effectiveness.

   (CO3,CO4) [Comprehension]

9. In traditional software, one software is dedicated to one system and only be used by a particular user of that system. However, this can be overcome by sharing the software with multiple users remotely. Identify the service which can be used to achieve this. explain in detail with pros and cons.

   (CO3,CO4) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS   2 X 15M = 30M

10. Outline the fundamental Computing platforms in a data environment, where software implementation occurs, and technologies that constitute the core of cloud computing by Service Providers (An individual or entity that provides services to another party).

    (CO1,CO2) [Application]

11. You are a cloud architect tasked with designing and implementing a comprehensive Service Level Agreement (SLA) for a cloud-based e-commerce platform. The platform serves customers globally and experiences fluctuating demand throughout the year, with peak traffic during major sales events. The business stakeholders emphasize the need for high availability, performance, and data security. Outline the key components and considerations you would include in the cloud SLA to meet the business requirements. Elaborate its life cycle with a neat diagram and its advantages.

    (CO4,CO3) [Application]