W/D/TY

Reg. No: 22BET0601

VIT
Vellore Institute of Technology

Final Assessment Test – April 2025

Course: BITE412L - Cloud Computing
Class NBR(s): 2690/2697
Time: Three Hours
Slot: B1+TB1
Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

Answer ALL Questions
(10 X 10 = 100 Marks)

1. An educational institution is planning to adopt cloud computing to enhance digital learning, streamline administrative operations, and manage IT infrastructure costs. The institution must ensure the security of student data, comply with education-related data protection regulations, and support scalable access for students and staff across campuses.

   As a cloud technology advisor, explain how the institution can utilize Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) to fulfill these requirements. Discuss the advantages and disadvantages of each cloud model with respect to data security, regulatory compliance, scalability, and cost-effectiveness in an educational environment?

2. Indian government is undergoing digital transformation to improve public service delivery, data security, and inter-agency collaboration. The initiative involves hosting public portals for citizens, managing confidential national records, enabling secure collaboration across government departments, and ensuring adaptability for future policy-driven expansions.

   As a cloud solution architect, recommend how the government can effectively utilize all four cloud deployment models—Public, Private, Hybrid, and Community Clouds. Explain how each model can be applied to meet specific operational and regulatory requirements. Evaluate the advantages and challenges of adopting a multi-cloud deployment strategy within the context of public sector governance and compliance.

3. Given the increasing use of virtualization in modern computing environments, explain in detail the various levels of virtualization implementation with the help of a neat diagram. Further, compare these levels in terms of performance, flexibility, and implementation complexity. Illustrate your answer with suitable examples.

4. In a virtual cluster environment, live VM migration ensures high availability and efficient resource management. Illustrate the steps involved in live VM migration and analyse how these steps contribute to minimizing downtime, balancing workload, and enabling maintenance without service interruption in virtualized infrastructures.

5. An enterprise IT team is evaluating two architectural approaches—Cloud Component Model and Service-Oriented Architecture (SOA)—to modernize their legacy applications. The organization needs to build scalable, modular services that