Roll No……

GL BAJAJ Institute of Management & Research Greater Noida

FIND YOUR SPARK

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306

POST GRADUATE DIPLOMA IN MANAGEMENT (2024-26)
END TERM EXAMINATION (TERM -IV)

Subject Name: **Cloud Computing for Business** Time: **02.00 hrs**
Sub. Code: **PGIT44** Max Marks: **40**

Note: All questions are compulsory. Section A carries 12 marks: 6 questions of 2 marks each, Section B carries 18 marks having 3 questions (with internal choice question in each) of 6 marks each and Section C carries 10 marks one Case Study having 2 questions of 5 marks each.

Kindly write the all the course outcomes as per your TLEP in the box given below:

S. No.	Course Outcomes (COs)	Bloom's Taxonomy Level
CO1	To provide a foundational understanding of Social Media and Web Analytics, including key concepts, tools, and platforms.	L2
CO2	To develop the ability to collect, analyze, and interpret social and web data for informed business decision-making.	L3
CO3	To equip students with practical skills in using analytics tools such as Google Analytics for monitoring and improving digital performance.	L3
CO4	To enable students to evaluate digital campaigns, understand audience behavior, and apply insights to real-world marketing strategies.	L4

SECTION - A

Attempt all questions. All questions are compulsory. **2×6 = 12 Marks**

Questions	CO	Bloom's Level
Q. 1: (A). What is a private cloud, and where is it commonly used? Q. 1: (B). What is PaaS, and who typically uses it? Q. 1: (C). What is load balancing in cloud environments? Q. 1: (D). What does on-demand delivery mean in cloud computing? Q. 1: (E). What is Elastic Load Balancing (ELB)? Q. 1: (F). List any two major benefits of using AWS.	CO1	L2

SECTION – B

All questions are compulsory (Each question has an internal choice. Attempt anyone (either A or B) from the internal choice) **6 x 3 = 18 Marks**

Questions	CO	Bloom's Level
Q. 2: (A). Discuss the key benefits of using AWS, including its global infrastructure, scalability, and elasticity **Or** **Q. 2: (B).** Describe the differences between on-demand delivery and traditional cloud deployments. How does each model affect cost, performance, and flexibility? **Q. 3: (A).** Explain the pay-as-you-go pricing model in AWS. How does it help organizations reduce cost and improve budget planning?	CO2	L3

Or **Q. 3: (B).** Discuss the features and advantages of Elastic Load Balancing (ELB). How does ELB improve application reliability and performance? **Q. 4: (A).** Describe the role of virtualization in cloud computing. Discuss various types of virtualization and how they contribute to cloud efficiency. **Or** **Q. 4: (B).** Explain in detail the various features of cloud computing and how these features transform business operations globally.	CO3 CO4	L3 L3

SECTION - C

Read the case and answer the questions **5×02 = 10 Marks**

Questions	**CO**	**Bloom's Level**
Q. 5: Case Study: OmniGlot cloud solution **Case Overview** OmniGlot, a fast-growing language-learning application, as it navigated a near-fatal crisis caused by its own viral success. Initially built on a traditional, fixed-server infrastructure, the company's inability to scale globally and handle peak user loads threatened its survival. OmniGlot migration to the public cloud solved these existential problems and positioned the company for sustainable long-term growth. **Business Background** OmniGlot was founded in 2021 with a mission to make language learning more engaging through AI-powered conversational practice. Its core feature is an AI tutor that allows users to have spoken conversations in a new language, providing real-time feedback on pronunciation and grammar. The company launched its app with support for five languages, hosting its entire platform on dedicated servers in a single data center in North America. The initial user base consisted of a few thousand dedicated learners, and the infrastructure was sufficient. The founding team consisted of language experts and software developers, but they lacked deep experience in managing large-scale, global infrastructure. **The Crisis of Growth** In early 2023, an influential social media campaign caused OmniGlot to go viral across Europe and East Asia. Daily active users surged from 5,000 to over 500,000 in less than a month. This explosive growth, while a market success, triggered a complete technological breakdown: • **Crippling Latency:** The AI conversation feature, which requires significant computational power, became unusable for international users. Users in Asia experienced delays of 2-3 seconds for every AI response, destroying the illusion of a real conversation. • **Constant Crashes:** The servers, sized for a small user base, were overwhelmed during peak hours (afternoons and evenings in Europe and Asia). The app would crash repeatedly, locking users out and leading to a flood of negative reviews. • **Inability to Scale:** The operations team attempted to solve the problem by ordering more servers, but the procurement and setup process took 6-8 weeks. By the time new servers arrived, user demand had already doubled again, making the new capacity instantly obsolete. • **Inefficient Costs:** In a desperate attempt to stabilize the service, the company massively over-provisioned its server capacity, resulting in huge	CO4	L3

hardware costs. This infrastructure sat idle for over 70% of the day during off-peak hours, burning through the company's venture capital funding at an alarming rate.

The company was caught in a paradox: its product was more popular than ever, but its inability to deliver it reliably was causing massive reputational damage and customer churn.

The Cloud Solution

Facing imminent failure, OmniGlot's CTO made the call to execute an emergency migration to a major public cloud provider. The migration strategy focused on solving the four core problems:

1. **Global Presence:** The application was deployed across multiple cloud regions (e.g., Ireland, Singapore, and a U.S. location). A cloud-based Global Load Balancer and Content Delivery Network (CDN) were used to automatically route users to the nearest data center, slashing latency for international users.
2. **Elastic Scalability:** The core application and AI model servers were re-architected to run within auto-scaling groups. This allowed the platform to automatically add server instances when demand surged during peak hours and, just as importantly, remove them when demand fell, ensuring a smooth user experience.
3. **Managed AI Services:** Instead of managing their own complex AI servers, OmniGlot shifted its AI models to the cloud provider's managed AI platform. This offloaded the operational burden of patching, scaling, and maintaining the AI infrastructure, allowing the development team to focus on improving the models themselves.
4. **Cost Efficiency:** The "pay-as-you-go" model of the cloud, combined with auto-scaling, meant that OmniGlot only paid for the compute resources it was actually using. This immediately eliminated the massive expense of idle, over-provisioned servers.

Outcomes and Impact

The migration was completed in a frantic four-week period, yielding immediate and dramatic results:

- **Performance:** Average AI response latency for global users dropped from over 2,000 milliseconds to under 300 milliseconds.
- **Reliability:** Platform uptime improved to 99.99%, even during peak user loads that were five times larger than what had caused the initial crashes.
- **Cost:** Overall infrastructure costs decreased by approximately 40% compared to the previous over-provisioned model, shifting from a fixed capital expense to a variable operating expense tied directly to user activity.
- **Agility:** With the new cloud infrastructure, deploying a new feature or adding support for a new language could be done in hours instead of weeks.

By leveraging the cloud, OmniGlot transformed its greatest weakness infrastructure into a strategic advantage, enabling it to successfully serve a global audience and secure its next round of funding.

Questions:

Q. 5: (A) Is cloud computing a true strategic advantage for OmniGlot? justify

Q. 5: (B). As a cloud expert, suggest the strategies you will adapt to over come the problems faced by the OmniGlot.

Kindly fill the total marks allocated to each CO's in the table below:

COs	Question No.	Marks Allocated
CO1	Q1	12
CO2	Q2	6
CO3	Q3	6
CO4	Q4, Q5	16

(Please ensure the conformity of the CO wise marks allocation as per your TLEP.)

Blooms Taxonomy Levels given below for your ready reference:

L1= Remembering
L2= Understanding
L3= Apply
L4= Analyze
L5= Evaluate
L6= Create