GL BAJAJ
Institute of Management & Research, PGDM Institute
Greater Noida
FIND YOUR SPARK

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POST GRADUATE DIPLOMA IN MANAGEMENT (2025-27)
END TERM EXAMINATION (TERM -II)

Subject Name: **Information Systems for Business**	Time: **02:00 hrs.**
Sub. Code: **PG207**	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 all the course outcomes as per your TLEP in the box given below:

CO1	Apply the fundamental concepts of Information Systems in diverse business processes.	L-3
CO2	Analyze the strategic role of Information Systems in gaining competitive advantage.	L-4
CO3	Evaluate different Information system development cycles and data management.	L-5
CO4	Analyze ERP systems in supply chain and CRM.	L-4
CO5	Analyze information systems security strategies and tools for protecting information.	L-4

SECTION - A

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

Questions	CO	Bloom's Level
Q. 1: (A). Describe the components of Information Systems, with diagram.	1	L3
Q. 1: (B). Explain the concept of Value Chain with example.	2	L4
Q. 1: (C). Describe the Waterfall Model of System Design with a diagram.	3	L5
Q. 1: (D). Explain how ERP uses a Centralized Database to integrate the process across functional domains: Finance, HR, Sales etc.	4	L4
Q. 1: (E). Distinguish between an OTP and CAPTCHA.	5	L5
Q. 1: (F). Describe ICT based solutions for: **a) Last Mile challenges in SCM, b) CRM,** with the help of 2 examples each.		

SECTION – B

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

Questions	CO	Bloom's Level
Q. 2: (A). What steps make up the System Development Life Cycle (SDLC)? Discuss each step with the help of examples.	3	L5
Or		
Q. 2: (B). Discuss Rapid Application Development (RAD) and is suited for which kind of projects.	3	L5
Q. 3: (A). Describe "Phishing" and suggest measures for its prevention.	5	L4
Or		
Q. 3: (B). Describe "DDoS (Distributed Denial-of-Service)" and suggest measures for its prevention.	5	L4
Q. 4: (A). Analyze the challenges associated with implementing ERP systems across on-premises, web-enabled, and cloud-based environments, supported by relevant illustrations.	4	L4
Or		
Q. 4: (B). Analyze the influence of the following technologies on contemporary Supply Chain Management (SCM) practices, highlighting their applications and benefits through relevant examples: i) 3D Printing/Additive Manufacturing	4	L4

ii) RFID (Radio-Frequency Identification)		

SECTION - C

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

Questions	CO	Bloom's Level
Q. 5: Case Study: Bank of America Transforms Its Information MIS Technology		

The Problem

Many economists classify the financial crisis of 2007-2008 as the worst financial crisis since the Great Depression of the 1930s. The crisis threatened to bring about the collapse of large financial institutions, which was prevented only by the bailout of banks by national governments. To stabilize the U.S. financial system, the U.S. government invested huge sums in institutions it considered to be critical to the functioning of the entire financial system; that is, "too big to fail."

One of these institutions was the Bank of America (BofA; www .bankofamerica.com), which received $45 billion in bailout funds. (*Note:* Bank of American repaid the entire amount in December 2009). The bank paid a further $17 billion in August 2014 to settle charges of mortgage fraud stemming from poor lending practices leading up to the financial crisis.

After the crisis, BofA executives directed the bank to take measures to eliminate the problems that led to its near-death experience in the financial crisis. Many of these measures involved BofA's information technology.

A Multipart Solution

BofA developed a series of strategic goals for its IT function: (1) standardize its IT infrastructure, (2) streamline applications, (3) develop customer-focused innovations, and (4) streamline the physical infrastructure. BofA's IT organization, called Global Technology and Operations, was directly tasked with achieving the first three goals.

IT Infrastructure. In the past, the IT department typically allocated separate servers in its data centers for each line of business, such as its mortgage business and its trading applications. To improve efficiency and reduce costs, the bank's first strategic goal was to create a standardized, shared IT infrastructure that all business units could readily access. As a result, BofA closed down 20 data centers and implemented a private cloud. (We discuss cloud computing in detail in Plug IT In 4.)

The business goals of moving the IT infrastructure to a private cloud were to enable the bank to respond more quickly to changing business conditions and to cut costs—as much as 50 percent from the bank's current data center costs. The cloud approach also enabled the bank to perform more computing tasks with less hardware. In addition it increased the ability of the bank's network, storage, and server capacity to scale up or scale down as business conditions dictate. Essentially, the cloud gives the bank more flexibility and speed to react to changes in the bank's dynamic business environment.

Corporate data often reside on specific servers in a single location. In contrast, data in a cloud environment may be stored on shared servers in multiple locations. This arrangement requires more complex security controls and compliance reporting. BofA must be able to prove to auditors that it is securely managing sensitive data such as bank account numbers and credit card information in its cloud. In fact, to improve information security and regulatory compliance, the bank is experimenting with tagging or labeling each piece of data so that it can follow the data across its global network, tracking anyone who has had access to it or has made changes to it.

Applications. Under a four-year plan implemented in 2010, BofA retired more than 18,000 applications, many of them left over from its acquisitions of other companies. For example, the bank spent $100 million to consolidate 5 Merrill Lynch financial adviser applications into one. (BofA acquired Merrill Lynch in 2013.) Further, users at corporate clients in 140 countries now access BofA's CashPro Online portal in 11 languages. The portal replaced hundreds of applications, including liquidity management, currency conversion, wire transfers, and many others. The bank also consolidated 22 collateral management systems into one and 8 teller systems into one.

Simplifying its IT infrastructure and reducing the license and support costs of thousands of applications have enabled the bank to invest a larger percentage of its $9 billion annual IT budget on new, innovative applications. In fact, BofA has doubled its spending on new development since 2009.

Innovative Customer Service. The bank's customers stated they wanted their bank to be "where they are." In response, the bank launched new versions of its customer smartphone and iPad app in 2014. The app provides three features:

1. *Account information and transactional capabilities.* For example, customers must be able to view account details and transfer funds on any device from wherever they are. Further, customers can order new debit and credit cards, view their available card

credit, schedule appointments, modify scheduled bill payments, order copies of posted checks, and perform many other functions.

2. *Service.* For example, if bank customers are traveling internationally, then they should be able to place a travel notification on their accounts via a mobile device rather than having to call the bank to speak to a customer service representative.

3. *Mobile payments and commerce*. BofA is offering services such as its clearXchange person-to-person payments network jointly with JPMorgan Chase and Wells Fargo. In addition, the bank offers its BankAmeriDeals merchant-funded rewards program, which allows customers to receive coupons from retailers by clicking on offers sent directly to their online banking accounts.

By July 2015, the app had 15 million users and was growing by more than 200,000 customers per month. In the second quarter of 2015, BofA managed a record 19 million deposits made from mobile devices. This amount is growing at a rate of 50 percent per year.

Physical Infrastructure. To reduce costs, BofA analyzed its network of banking centers; that is, bank branch locations and ATMS. The bank tracked every transaction by customer, location, time, and channel. It then stored the information for 60 months—a total of more than 20 terabytes of data. For security purposes, the bank removed all details that would identify any individual. In addition to tracking customer activity, the bank examined the capacity of each branch and ATM, the costs of each location, each branch's total revenues, annual sales, and first-year revenue sales to a new customer. Based on the results of the analysis, BofA was able to reduce its banking centers from 6,151 in 2008 to fewer than 5,000 by July 2015. The bank also reduced its annual branch and ATM expenses by nearly 15 percent from $5.5 billion to $4.7 billion.

Interestingly, beginning in 2009 Bank of America IT executives meet annually with 40 technology startups in Silicon Valley to learn about new products. Over the years, the bank has decided to do business with about 17 percent of these startups. BofA's work with startups balances the bank's need for scale and reliability against its need for new ideas.

BofA has high expectations for these vendors. The bank requires open standards and interoperability. It also requires technology contracts in which costs scale down as well as up. Finally, technology vendors must share BofA's risk and regulatory rules, including, in some cases, agreeing to contracts where vendors share in the liability if their technology causes problems that lead to losses or fines for the bank.

The Results

The IT transformation is ongoing, but the bank's financial results seem sound. In July 2015, Bank of American was the country's second-largest bank, with approximately $2.1 trillion in assets. Further, the bank reported net income of $5.3 billion in the second quarter of that year.

Questions

1. What is the relationship between the development of mobile banking customer applications and the closing of banking centers?	2	L5
2. Refer to Porter's strategies for competitive advantage. Which strategy (or strategies) is (are) the Bank of America pursuing? Provide specific examples to support your answer.	2	L5

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

COs	Marks Allocated
CO1	01 Marks
CO2	15 Marks
CO3	08 Marks
CO4	08 Marks

(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