



**CERTIFIED PUBLIC ACCOUNTANT  
FOUNDATION LEVEL 2 EXAMINATIONS**

**F2.3: INFORMATION SYSTEMS**

**DATE: TUESDAY 27, AUGUST 2024**

**MODEL ANSWERS & MARKING GUID**

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## QUESTION ONE

### Marking guide

QN	Description	Marks	Total Marks
a	1 mark for outline and 1 mark for explanation on each element 5 points * 2 marks = 10 maximum marks Other answers offered by candidates but not in the model answer are acceptable if they are valid.	10	
b	1 mark for each well explained advantage 10 points * 1 mark = 10 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	10	
	<b>Total Marks</b>		<b>20</b>

### Model answer

- a) **Describe FIVE Information Technology elements that could be upgraded or implemented to address challenges faced by KDH Tech Company effectively.**

To address the challenges faced by KDH Tech Company, several elements of its IT infrastructure can be upgraded or implemented. Here are five critical components:

- ❖ **Changing from dispersed servers to Cloud-based servers:** this will enhance operational efficiency within the company as Cloud servers offer scalability, allowing KDH Tech to adjust resources based on demand without the need for substantial and in addition this will reduce downtime and improve transaction processing times as cloud providers typically have robust infrastructures with redundancy and failover capabilities.
- ❖ **Upgrading to modern network equipment:** Upgrading networking equipment such as routers, switches, and firewalls is essential for improving data transmission speeds and reliability and supports higher bandwidths and better security protocols, which can help mitigate issues related to slow transactions and data inconsistency across stores.
- ❖ **Purchasing cloud based and centralized data management system:** This involves merging all stores in one location especially on cloud storage allowing for seamless updates and backups while providing a single source of truth for inventory, sales data, and customer information for easy control and consistent access in real-time.
- ❖ **Securing company network using Virtual Private Network (VPN):** this will enable company staff to access all data remotely through company's network while ensuring data security during transmission.

- ❖ **Employees & stakeholder’s consultations on system integration services:** This will assist KDH Tech company to set proper IT infrastructures which are appropriate as well as addressing the stakeholder’s needs.
- ❖ **Upgrade to Point of Sale (POS) Systems:** Upgrading to cloud-based POS systems can streamline transaction processes across all retail locations. These systems provide real-time data synchronization with inventory management systems, enhancing operational efficiency by reducing errors associated with manual entries and ensuring that stock levels are accurately reflected across all stores.

**b) Briefly describe TEN advantages of cloud computing.**

- ❖ **It enhances cost efficiency:** use of cloud computing services assist companies to reduce capital expenditures on physical hardware and maintenance costs associated with traditional IT infrastructure.
- ❖ **Reduces denial and scalability of the service:** Cloud computing allow businesses and individuals to scale their IT resources up or down based on current needs without significant investment or delays.
- ❖ **Improves accessibility to information and applications:** Cloud services enable employees to access applications and data from anywhere with an internet connection, promoting flexibility in work arrangements.
- ❖ **Cloud computing assist in disaster recovery:** Many cloud providers offer built-in disaster recovery solutions that ensure business continuity through regular backups and quick recovery options.
- ❖ **Cloud computing services provides automatic updates:** Cloud service providers manage software updates automatically, ensuring that businesses always use the latest technology without additional effort or cost.
- ❖ **Enhanced easy team collaboration:** Cloud computing facilitates better collaboration among teams by providing shared access to documents and applications in real time.
- ❖ **Improved security:** Leading cloud providers invest heavily in security measures such as encryption, identity management, and compliance certifications that may exceed what individual companies could afford to implement independently.
- ❖ **Environmental sustainability:** Utilizing cloud services often leads to reduced energy consumption due to optimized resource usage compared to traditional on-premises setups.

- ❖ **Performance monitoring tools:** Many cloud platforms come equipped with performance monitoring tools that help businesses track application performance metrics easily.
- ❖ **Global reach:** Cloud computing allows companies like KDH Tech to deploy applications globally without needing physical infrastructure in every location, thus expanding their market reach efficiently.
- ❖ Firms can shift additional processing requirements to cloud computing during peak business periods.

## QUESTION TWO

### Marking guide

QN	Description	Marks	Total Marks
a	1 mark for outline and 1 mark for explanation on each challenge 10 points * 1 mark = 10 maximum marks Other answers offered by candidates but not in the model answer are acceptable if they are valid.	10	
b	1 mark for each issue explained 5 points * 1 mark = 5 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	5	
c	1 mark for each stated problem 5 points * 1 mark = 5 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	5	
	<b>Total Marks</b>		<b>20</b>

## Model answer

### a) Discuss five major challenges in creating and maintaining coherent IT infrastructure categories of computer assets that may need to be assessed.

- ❖ **Security challenge:** due to mix of outdated hardware's, security protocols may be inconsistent or inadequate which could be exploited by cyber threats, necessitating a comprehensive security strategy that encompasses all assets.
- ❖ **Integration of old and new systems within the organization:** UMUYENZI Corp has integrated outdated hardware and software systems with new technologies and often lack compatibility with modern applications, which can lead to data slow and hinder communication between different departments.
- ❖ **Data management complexity:** The disarray in data organization complicates data management efforts. Ensuring that data is consistently categorized, stored, and retrievable across various platforms requires robust governance policies and practices.
- ❖ **Scalability issues:** As UMUYENZI Corp grows, its IT infrastructure must be able to scale accordingly. This involves not only adding more hardware but also ensuring that software solutions can handle increased loads without performance degradation.
- ❖ **User training and adoption challenge:** Implementing new IT infrastructure often meets resistance from employees who are accustomed to existing processes. Effective training programs are essential to ensure user adoption of new technologies and practices.

### Measures of maintaining Coherent IT infrastructures

- ❖ **Making wise infrastructure investments:** IT infrastructure is a major capital investment for the firm. If too much money is spent on infrastructure, it lies idle and constitutes a drag on firm financial performance. If too little is spent, important business services cannot be delivered and the firm's competitors will outperform the under-investing firm.
- ❖ **Coordinating infrastructure components:** Firms create IT infrastructures by choosing combinations of vendors, people, and technology services and fitting them together so they function as a coherent whole.
- ❖ **Dealing with scalability and technology change:** As firms grow, they can quickly outgrow their infrastructure. As firms shrink, they can get stuck with excessive infrastructure purchased in better times. Scalability refers to the ability of a computer, product, or system to expand to serve a larger number of users without breaking down.
- ❖ **Management:** Involves who will manage the firm's IT infrastructure.
- ❖ **Governance:** Involves who will control the firm's IT infrastructure.

**b) Describe five issues that affect the management of organizational data.**

- ❖ The amount of data being generated in information systems is growing at a phenomenal rate.
- ❖ Data must be stored for a long period of time, both for legal reasons and so it can be analyzed to aid business decision-making.
- ❖ Data is collected by many groups within the organization using different methods and technology.
- ❖ Data is stored using different servers, systems, databases, and formats.
- ❖ Only a small fraction of an organization's data is appropriate for aiding any specific decision.
- ❖ An increasing amount of external data needs to be considered when making decisions.
- ❖ Data security, quality, and integrity are critical issues for those managing organizational data.

**c) State five problems associated with the traditional file environment.**

- ❖ Data redundancy is the presence of duplicate data in multiple data files. In this situation, confusion results because the data can have different meanings in different files.
- ❖ Program-data dependence is the tight relationship between data stored in files and the specific programs required to update and maintain those files.
- ❖ Lack of flexibility refers to the fact that it is very difficult to create new reports from data when needed.
- ❖ Poor security results from the lack of control over the data because the data are so widespread.
- ❖ Data sharing is virtually impossible because it is distributed in so many different files around
- ❖ The organization and each file can only be accessed by its own application.

### QUESTION THREE

#### Marking guide

QN	Description	Marks	Total Marks
a	1 mark for each point correctly provided 5 points * 1 mark = 5 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	5	
b	1 mark for each correctly outlined supply chain processes 5 points * 1 mark = 5 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	5	
c	1 mark for each challenge explained 5 points * 1 mark = 5 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	5	
d	1 mark for each outlined enterprise applications 5 points * 1 mark = 5 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	5	
	<b>Total Marks</b>		<b>20</b>

#### Model answer

a) **Provide five ways in which wireless customer relationship management (CRM) would enable sales and field service professionals.**

- ❖ **Real-time data access to customer accounts:** Wireless CRM solutions allow sales representatives and field service professionals to access customer data, sales history, and service records in real-time from their mobile devices. This immediate access enables them to make informed decisions quickly, enhancing their ability to respond to customer inquiries and issues efficiently.
- ❖ **Improved communication:** With wireless CRM, communication between team members can be streamlined through instant messaging or notifications. Sales reps can easily collaborate

with colleagues or consult with technical support while on the go, ensuring that they have the necessary information at their fingertips.

- ❖ **Enhanced customer interaction/engagement:** Mobile access to CRM tools allows professionals to engage with customers more effectively during meetings or service calls. They can pull up relevant information about the customer's previous interactions, preferences, and purchase history, which helps tailor conversations and improve customer satisfaction.
- ❖ **Sales performance analytics and reporting:** Wireless CRM solutions provide access to analytics dashboards that help sales professionals track performance metrics on-the-go. They can monitor sales targets, conversion rates, and other key performance indicators (KPIs), allowing them to adjust strategies promptly based on real-time insights.
- ❖ **Customer feedback collection:** Field service professionals can use mobile devices to collect feedback from customers immediately after a service interaction. This direct feedback loop helps identify areas for improvement in products or services while also demonstrating responsiveness to customer needs.
- ❖ **Update customer accounts and deal information to update customer database**  
**Instantaneously:** Sales representatives can enter new leads, update customer information, or log service calls directly from their mobile devices. This immediacy reduces the risk of data loss or inaccuracies that may occur when entering information later in a desktop system.
- ❖ Streamlining customer data management
- ❖ Optimizing sales processes and pipeline management.
- ❖ Targeted marketing and sales campaigns.
- ❖ Customer retention and loyalty

#### b) Five main supply chain processes

1. **Plan:** This is the initiation stage that involves forecasting demand for products and determining how much inventory is needed to meet that demand efficiently and includes setting production schedules, managing inventory levels, and aligning resources accordingly.
2. **Source:** Sourcing refers to selecting suppliers who will provide the goods and services required for production. This process includes negotiating contracts, establishing supplier relationships, and ensuring quality control over incoming materials.
3. **Make:** The manufacturing process encompasses converting raw materials into finished products through various production methods. It involves managing production lines, quality assurance checks, and maintaining operational efficiency throughout the manufacturing cycle.
4. **Deliver:** Delivery involves transporting finished products from manufacturing facilities to distribution centers or directly to customers. This process includes order fulfillment logistics such as warehousing management, transportation planning, and last-mile delivery coordination.



5. **Return:** Returns management deals with handling returned products from customers due to defects or dissatisfaction. It includes processing returns efficiently while assessing reasons for returns in order to improve product quality or customer satisfaction moving forward.

### c) Five Management Challenges of E-Commerce

- ❖ **Lack of universally accepted standards for quality, security and reliability:** The absence of standardized protocols complicates trust, leading to inconsistencies in service quality and security measures across platforms.
- ❖ **Difficulty in integrating e-commerce software with some existing applications and databases:** Integration challenges arise when legacy systems are incompatible with modern e-commerce solutions, hindering operational efficiency and data flow.
- ❖ **Unresolved legal issues related to fraud and buyer and seller protection:** Legal ambiguities regarding online transactions create vulnerabilities for both consumers and businesses, complicating dispute resolution and liability.
- ❖ **Customer resistance to changing from real to virtual stores:** Many customers prefer traditional shopping experiences due to familiarity, sensory engagement, and perceived risks associated with online purchases.
- ❖ **Perception that e-Commerce is expensive and unsecured:** Consumers often view online shopping as costly due to shipping fees or hidden charges, while concerns about data breaches deter participation.
- ❖ **Increasing incidence of internet fraud and other crimes such as cyber security crimes:** The rise in cybercrime undermines consumer confidence in e-commerce, as phishing scams and identity theft become more prevalent threats.
- ❖ **Data security and privacy concerns:** With the increase in online transactions comes the heightened risk of data breaches and cyberattacks. E-commerce companies must invest in secure systems to protect sensitive customer information such as payment details and personal data. Failure to do so can lead to loss of trust and legal repercussions.
- ❖ **Competition and market saturation:** The e-commerce landscape is highly competitive, with numerous players vying for market share. Businesses must continuously innovate and differentiate themselves from competitors while keeping prices competitive. This requires effective marketing strategies and an understanding of market trends.
- ❖ **Internet connections:** e-commerce face greater challenge of where most of the countries are rural areas concentrated which decreases the potentiality of efficiency of ecommerce.
- ❖ Variation of Cultural values including using internet is limited to some societies
- ❖ Jurisdictions who has controls over the customer including related intervention during any issues happened and relevant applicable laws like taxes.

### d) Five Enterprise Applications Supporting CRM and SCM

- ❖ **Salesforce CRM:** Salesforce is a leading cloud-based CRM platform that helps businesses manage customer relationships through sales automation, marketing tools, analytics, and customer support features. It enables real-time access to customer data for sales representatives.
- ❖ **Microsoft Dynamics 365:** This enterprise application combines CRM and ERP capabilities into one solution that supports sales automation, customer service management, supply chain operations, and analytics for informed decision-making.
- ❖ **SAP SCM:** SAP's Supply Chain Management software provides comprehensive solutions for planning, executing, monitoring, and controlling supply chain activities. It integrates various functions such as procurement, production planning, inventory management, and logistics.
- ❖ **Oracle NetSuite:** NetSuite offers a unified business management suite that includes CRM capabilities alongside ERP functionalities for supply chain management. It allows organizations to manage financials, inventory, orders, and customer interactions from a single platform.
- ❖ **Zoho CRM:** Zoho provides a cost-effective CRM solution designed for small to medium-sized businesses with features like lead management, workflow automation, analytics tools, and integration with other applications including SCM systems.
- ❖ **Infor Supply Chain Management:** Provides end-to-end supply chain visibility and integrates with CRM systems for enhanced operational efficiency.
- ❖ **HubSpot CRM:** A free, user-friendly CRM that integrates with supply chain applications for better management of customer data and order processing.

#### QUESTION FOUR

QN	Description	Marks	Total Marks
a	<p>2 marks for information system's value            2 marks of each limitation provided            = 4 points *2 marks=8 maximum marks            2 marks + 8 marks = 10 maximum marks</p> <p>Other answers offered by candidates but not in the model answer are acceptable if they are valid.</p>	10	
b	<p>2 marks for well explained system failure            1 mark for listing, 1 mark for each explanation problem            area = 4 points *2 marks=8 maximum marks</p> <p>2 marks + 8 marks = 10 maximum marks</p>	10	

QN	Description	Marks	Total Marks
	Other answers offered by candidates but not in the model answer are acceptable if they are valid.		
	<b>Total Marks</b>		<b>20</b>

### Model answer

- a) **Describe value of systems from a financial perspective and four limitations of financial models for estimating the value of information systems.**

**Values of information systems in financial perspective include the following:**

- ❖ **Cost reduction:** Information systems can significantly reduce operational costs by automating processes, minimizing manual labor, and streamlining workflows. For instance, implementing an Enterprise Resource Planning (ERP) system can lead to reduced inventory costs and improved supply chain management.
- ❖ **Increased revenue:** By enhancing customer service and improving product offerings through data analysis, information systems can help companies identify new market opportunities and increase sales. For example, CRM systems allow businesses to better understand customer preferences and tailor their marketing strategies accordingly.
- ❖ **Improved decision-making:** Information systems provide timely and accurate data that support strategic decision-making. This leads to more informed choices that can positively impact financial performance. Business Intelligence (BI) tools enable organizations to analyze trends and forecast future performance effectively.
- ❖ **Enhanced productivity:** Automation of routine tasks through information systems allows employees to focus on higher-value activities, thereby increasing overall productivity. This can lead to higher output without a proportional increase in costs.
- ❖ **Better financial management:** Information systems facilitate better tracking of financial transactions and reporting, leading to improved cash flow management and financial planning. Accounting software helps in maintaining accurate records which are crucial for compliance and strategic planning.
- ❖ **Risk management:** Advanced information systems can help identify potential risks through predictive analytics, allowing organizations to mitigate those risks before they materialize financially. This proactive approach can save significant amounts of money in the long run.
- ❖ **Competitive advantage:** Investing in advanced information systems can create a competitive edge by enabling faster response times to market changes or customer needs, ultimately leading to increased market share and profitability.
- ❖ **Easy access of the information:** Information is accessed in proper and orderly manner which eases the execution of tasks once it is implemented.

## **Four Limitations of Financial Models for Estimating the Value of Information Systems**

- ❖ **Financial models do not consider intangible Benefits:** Many benefits derived from information systems are intangible (e.g., improved employee morale or enhanced brand reputation), making them difficult to quantify in financial models.
- ❖ **Financial models are based on assumptions and estimates:** Financial models often rely on assumptions about future performance that may not hold true over time, leading to inaccurate valuations.
- ❖ **Short-term focus:** Many financial models emphasize short-term gains rather than long-term value creation, potentially underestimating the full impact of an information system investment over its lifecycle.
- ❖ **Complexity of implementation costs:** The total cost of ownership for information systems includes hidden costs such as training, maintenance, and upgrades which are often overlooked in financial models.
- ❖ **Do not consider the dynamic market conditions:** Rapid changes in technology or market conditions can render initial financial projections obsolete quickly, making it challenging to rely on static models for long-term planning.
- ❖ **Difficulty in measuring ROI:** Calculating Return on Investment (ROI) for information systems is complex due to the interplay between various factors influencing both costs and benefits over time.
- ❖ **Overemphasis on quantitative metrics:** Financial models may prioritize quantitative metrics at the expense of qualitative factors that could be equally important for assessing the true value of an information system investment.

### **b) Information System Failure and Major Problem Areas**

Information system failure refers to situations where an implemented system does not meet its intended objectives or fails entirely during operation, resulting in wasted resources or negative impacts on business operations.

**The four major problem areas associated with information system failures include:**

- ❖ **Design:** the system may fail to capture essential business requirements or improve organizational performance. Information may not be provided quickly enough to be helpful; it may be in a poor format or it may represent a wrong piece of data. The system may be designed with poor user interface. If the system is not compatible with the structure, culture and goals of the organization as a whole, it is unlikely to be a success.

- ❖ **Data:** the data may be inaccurate or inconsistent. The information in certain fields may be erroneous or ambiguous. The data may not be organized properly. Information required for a specific business function may be inaccessible because the data are incomplete.
- ❖ **Cost:** some systems operate well but their implementation cost may have gone way over budget. Other system projects may be too costly to complete. In either case, the excessive expenditures cannot be justified by the business value of the information they provide.
- ❖ **Operations:** the system does not run well. Information is not available in a timely and efficient manner. Jobs fail too often, leading to excessive reruns and late or missed schedules for delivery of information. The response time may be too long.

## QUESTION FIVE

### Marking guide

QN	Description	Marks	Total Marks
a(i)	1 mark for listing and 1 mark for each explanation 2 points * 2 marks = 4 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	4	
a(ii)	1 mark for listing and 1 mark for each explanation 2 points * 2 marks = 4 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	4	
a(iii)	1 mark for listing and 1 mark for each explanation 1 points * 2 marks= 2 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	2	
b(i)	1 mark for listing, 3 points * 1 mark = 3 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	3	
b(ii)	1 mark for listing, 3 points * 1 mark = 3 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	3	
c(iii)	1 mark for listing, 4 points * 1 mark = 4 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	4	
	<b>Total Marks</b>		<b>20</b>

## Model answer

### a) Key legal issues in managing information systems

#### i) Four key legal issues in data privacy and protection

- ❖ **Regulatory compliance with data protection laws and regulations:** for example, in Rwanda all individuals and Companies On October 15th 2021, Law No 058/2021 of 13/10/2021 relating to the protection of personal data and privacy and other local regulations. These laws dictate how personal data should be collected, stored, processed, and shared. Non-compliance can lead to hefty fines and legal repercussions.
- ❖ **Data breaches and security incidents:** The risk of data breaches poses a significant legal issue for financial services companies. If sensitive customer information is compromised due to inadequate security measures, the company may face lawsuits from affected individuals or regulatory bodies. This necessitates robust cybersecurity protocols to protect against unauthorized access.
- ❖ **User consent and rights:** Obtaining informed consent from users before collecting their personal data is crucial. Companies must clearly communicate how they intend to use this data, which can be legally challenging if customers do not fully understand the implications of their consent.

#### ii) Four key legal issues in intellectual property rights

- ❖ **Infringement of copyrights:** Financial services companies often rely on proprietary software and digital content that are protected by copyright law. Unauthorized use or distribution of these materials can lead to legal disputes over copyright infringement.
- ❖ **Misappropriation of trade secrets:** Companies often rely on trade secrets for competitive advantage (e.g., algorithms or business strategies). Protecting these secrets from disclosure or theft is critical but challenging in a digital environment where information can easily be shared or leaked.
- ❖ **Counterfeiting of trademarks:** as there is increase in brand presence online, there is increase in counterfeiting which can dilute brand value and lead to confusion among consumers.
- ❖ **Patent rights:** Innovations in technology used for financial services may be patentable inventions. Protecting these patents is essential for maintaining a competitive edge; however, navigating patent law can be complex and requires vigilance against potential infringements.

#### iii) Three key legal issues in data sovereignty

- ❖ **Local data legal compliance requirements:** Many countries have laws mandating that certain types of data (especially personal data) must be stored within national borders. This creates logistical challenges for companies like Fintech that operate globally while needing to comply with local laws.
- ❖ **Government access to data:** Different countries have varying laws regarding government access to private data held by companies operating within their borders, raising concerns about privacy rights and corporate responsibility when responding to government requests.
- ❖ **Cross-border data transfers:** When operating globally, Fintech Inc. faces challenges related to transferring personal data across borders. Different countries have varying regulations regarding data privacy, which can complicate compliance efforts when moving data internationally.

## **b) Key challenges faced by financial services companies**

### **i) Three key challenges in combating terrorism financing**

- ❖ **Identifying suspicious transactions:** Financial service companies face a challenge in developing sophisticated systems capable of detecting patterns indicative of terrorism financing amidst legitimate transactions without infringing on customer privacy rights.
- ❖ **Global networks challenge:** Financing activities are spread across multiple jurisdictions, complicating efforts to track and control funds.
- ❖ **Transactional tactics:** As regulations tighten, terrorist groups constantly adapt their methods, so controlling requires financial institutions to stay ahead of emerging threats.
- ❖ **Limited training staff on compliance protocols:** Most of the financial companies have limited staff which are able to identify and detect terrorist financing transactions.
- ❖ **Technological limitations:** Many financial institutions struggle with outdated technology that hampers their ability to effectively monitor transactions for potential links to terrorism financing activities.



## ii) Three key challenges in money laundering

- ❖ **Layering transactions:** Money launderers often layer transactions across various accounts and institutions to obscure the source of funds.
- ❖ **High volume of transactions:** The sheer volume of financial transactions makes it challenging to identify suspicious activities.
- ❖ **Technological sophistication:** Money launderers use advanced technologies, including cryptocurrencies, to facilitate anonymous transactions.
- ❖ **Customer due diligence requirements:** Implementing effective Know Your Customer (KYC) processes is essential but challenging as it requires balancing thoroughness with customer experience considerations during onboarding processes.
- ❖ **Evolving techniques used by criminals:** Money launderers continuously adapt their methods; therefore, financial institutions must stay ahead by updating their detection systems regularly based on emerging trends.
- ❖ **Regulatory pressure and penalties:** The increasing scrutiny from regulators means that failure to detect money laundering activities could result in severe penalties, creating pressure on financial institutions' resources.

## iii) Six key challenges in securing E-Commerce operations

- ❖ **Fraud:** E-commerce platforms are prime targets for fraudsters
- ❖ **Identity theft:** E-commerce platforms are prime targets for identity thieves.
- ❖ **Data privacy:** Ensuring the protection of sensitive customer information in compliance with data protection laws like GDPR and RCPA.
- ❖ **Cross-Border legalities:** Navigating the complex legal landscape of cross-border e-commerce, including varying consumer protection and data transfer laws.
- ❖ **Cybersecurity threats:** E-commerce platforms are prime targets for cyberattacks such as phishing scams, ransomware attacks, and denial-of-service attacks that threaten both operational integrity and customer trust.

- ❖ **User authentication mechanisms:** Implementing robust user authentication methods (such as multi-factor authentication) is necessary yet challenging due to potential impacts on user experience during login processes or transactions.

## QUESTION SIX

### Marking guide

QN	Description	Marks	Total Marks
a(i)	1 mark for each outline 6 points * 1 mark = 6 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	6	
a(ii)	1 mark for outlining and 1 mark for explanation 2 points * 2 marks = 4 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	4	
b	1 mark for outlining and 1 mark for explanation 10 points * 1 mark = 10 maximum marks  Other answers offered by candidates but not in the model answer are acceptable if they are valid.	10	
	<b>Total Marks</b>		<b>20</b>

### Model answer

#### a) i) Six opportunities of wireless technology to business

- ❖ Wireless technology gives firms more flexibility
- ❖ The ability to innovate.
- ❖ Wireless systems support business processes that are not limited by time or location,
- ❖ Extending the company's reach and saving employees and customers substantial amounts of time.
- ❖ The technology provides a new channel for connecting with customers.
- ❖ It can also be a source of exciting new products and services.
- ❖ A wireless makes it easier to access server-based data
- ❖ Wireless increase business mobility
- ❖ All network programs and files are accessible via the wireless network from anywhere in the building within signal range.

- ❖ staff members can share and access information while on the move
- ❖ Business owners can quickly expand their operations thanks to wireless technology

## ii) Two management challenges caused by wireless technology to business

The principal challenge posed by wireless technology is integrating this technology into the Firm's IT infrastructure and maintaining security and privacy:

- ❖ **Integrating Wireless Technology into the Firm's IT Infrastructure:** A large enterprise may have hundreds of wireless access points and many thousands of wireless devices to configure and monitor, similar to a desktop environment. It will be a challenge to integrate this new network infrastructure with the firm's existing infrastructure and applications. Central coordination and oversight are required.
- ❖ **Maintaining Security and Privacy:** Maintaining security and privacy poses special challenges for users of wireless technology. Wi-Fi security is not well developed, making such systems especially vulnerable to infiltration from outsiders. Wireless systems are easily susceptible to interference from other devices in the same bandwidth.
- ❖ **Network reliability Issues:** Wireless connections may be less stable than wired connections due to interference or signal loss. This unreliability can disrupt business operations if not managed effectively.
- ❖ **Integration difficulties:** Integrating new wireless technologies with existing systems can pose challenges in terms of compatibility and functionality, requiring additional resources for training and system upgrades.

## b) Ten enterprise systems challenges

- ❖ Enterprise applications are very difficult to implement successfully.
- ❖ They require extensive organisational change,
- ❖ They require extensive process change,
- ❖ They require extensive significant investments in software
- ❖ They require extensive significant related implementation activities
- ❖ They require a careful evaluation of how these systems will enhance organisational performance.

- ❖ Changing Business Requirements
- ❖ Application Security and Control
- ❖ Data Storage and Analysis
- ❖ Development Time
- ❖ User Experience (UX)

## QUESTION SEVEN

### Marking guide

QN	Description	Marks	Total Marks
a	<p>1 mark for outline and 1 mark for explanation 5 points * 2 marks = 10 maximum marks</p> <p>Other answers offered by candidates but not in the model answer are acceptable if they are valid</p>	10	
b	<p>1 mark for each well explained challenge 3 points * 1 mark = 3 maximum marks</p> <p>1 mark for each well explained solution 7 points * 1 mark = 7 maximum marks = 3 marks + 7 marks = 10 maximum marks</p> <p>Other answers offered by candidates but not in the model answer are acceptable if they are valid.</p>	10	
<b>Total Marks</b>			<b>20</b>

### Model answer

#### a) Five Stages of Software Development

1. **The system investigation** (sometimes referred to as system definition) is the first stage of SDLC. At this stage the business problem (or business opportunity) is investigated to define the problem, to identify why a new system is need and to define the objectives of the proposed system.
2. **Systems analysis** is the examination of the problem that the organization is trying to solve with an information system. This stage involves defining the problem in more detail,

identifying its causes, specifying solutions, and identifying the information requirements that must be satisfied by a system solution.

3. **Systems Design** The purpose of the systems design phase is to show how the system will fulfil the information requirements specified in the system analysis phase. The system designer draws up specifications that will deliver the functionality identified during the systems analysis phase.
4. **As part of the system implementation phase** new hardware may need to be acquired and if not already developed in house software will also need to be acquired. A critical part of the implementation phase is the data conversion or changeover.
5. **Maintenance** is the carrying out of modifications to a production system to correct errors, meet new requirements, and improve efficiency of the system.

#### b) Three management challenges in system development process

- ❖ **Ever-Changing Software Requirements:** This challenge arises when additional features or requirements are added after project initiation without corresponding adjustments in resources or timelines. It can lead to project delays and budget overruns.
- ❖ **Challenges in resource allocation within the project:** Effectively managing resources such as personnel, technology, and finances can be difficult in a complex project which can result in bottlenecks or underutilization of skills.
- ❖ **Challenge in Stakeholder Engagement/consultations:** Ensuring that all stakeholders remain engaged throughout the development process is crucial for success but can be challenging due to differing priorities or communication barriers.
- ❖ **Quality assurance challenge:** Maintaining high-quality standards throughout development while adhering to deadlines can be challenging due to time constraints or insufficient testing resources.
- ❖ **Cross-Platform Functionality:** A system lacks portability (crossing to the other side of the business) and the functionality of the system get limited.
- ❖ **Confidentiality of Business Information:** system must be built for role based access and access based login audit system. This become a challenge because most of management are unaware of the confidential information to be exposed to the public.

## Seven Solutions in System Development Process

- ❖ **Adoption of Agile model** which accommodates the latest changes within the system development.
- ❖ **Use of Enterprise resource planning system** to assist in proper guidance on resource allocation.
- ❖ **Clear project requirements Definition:** Establishing a clear scope at the outset through thorough requirement analysis helps mitigate scope creep by ensuring everyone understands what will be delivered.
- ❖ **Regular and instant communication with stakeholders:** Implementing regular updates with stakeholders through meetings or reports fosters engagement and ensures alignment on project goals.
- ❖ **Encouraging the appropriate training programs:** Providing training sessions for staff on new systems promotes acceptance by easing transitions into new workflows associated with system implementation.
- ❖ **Dedicated and equipped team with relevant tools:** Assigning a dedicated team focused on resource allocation helps ensure that personnel are utilized efficiently across various tasks within the project timeline.
- ❖ **Including Risk management plans during system development:** Developing risk management strategies early on allows teams to anticipate potential challenges related to quality assurance or stakeholder engagement proactively.
- ❖ **User involvement in testing phases:** Involving end-users during testing phases ensures that their feedback is considered early on which enhances usability upon deployment.
- ❖ **Enhancing comprehensive documentation practices:** Maintaining comprehensive documentation throughout all stages of development aids in knowledge transfer among team members and serves as a reference point for future projects.
- ❖ **Post-implementation review:** Conducting reviews after deployment helps identify lessons learned which can inform future projects regarding both successes achieved and areas needing improvement.

## End of Marking Guide and Model Answers