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SRI LANKA

Association of Accounting Technicians of Sri Lanka

Level II Examination - July 2023

Suggested Answers

Association of Accounting Technicians of Sri Lanka
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Fifteen (15) Compulsory Questions. (Total 25 Marks)	**SECTION - A**

Suggested Answers to Question One:

1.1	(3)	**1.6**	(4)	**1.11**	False.
1.2	(4)	**1.7**	(1)	**1.12**	False.
1.3	(2)	**1.8**	(3)	**1.13**	False.
1.4	(3)	**1.9**	(1)	**1.14**	True.
1.5	(2)	**1.10**	(1)	**1.15**	False.

(02 marks each, 20 marks)   *(01 mark each, 05 marks)*

(Total 25 marks)

End of Section A

Suggested Answer for Question Two:

Chapter 01 - Concepts of Information Systems and Impact of Information Systems

(Writing any two of the below characteristics would permit full marks)

(a) Quality information is essential for making informed decisions, conducting accurate research, and ensuring the effectiveness of various processes.

1. Accuracy

Quality information is accurate and free from errors, omissions, or distortions. It represents the reality or truth of the situation it is describing. Accuracy ensures that decisions and actions based on the information will lead to desired outcomes.

2. Relevance

Information should be relevant to the context or purpose for which it is being used. Irrelevant information can lead to confusion and misguided decisions. Quality information is tailored to meet the specific needs of the user or the task at hand.

3. Timeliness

Timely information is up-to-date and available when it is needed. Outdated information can lead to incorrect decisions or missed opportunities. Quality information is current and reflects the most recent developments.

4. Completeness

Information should include all the relevant details necessary to make effective decisions. Because, incomplete information can lead to misunderstandings or incomplete analyses.

5. Consistency

Consistent information does not contradict itself or other known facts. Inaccurate or conflicting information can erode trust in the data and hinder decision-making. Quality information is coherent and aligns with other credible sources.

6. Cost Effectiveness

The information is not desirable if the solution is more costly than the problem. The Cost of gathering data & processing it in to information must be weighed against the benefits derived from using such information.

7. Understandability

Information should be understood by the receiver in order to make effective decisions.

8. Availability

Information should be readily available and accessible when it is required.

9. Reliability

Information should be reliable and trustworthy.

(03 marks)

(b) Information Systems (IS) and Information Technology (IT) play crucial roles in enhancing an organization's responsiveness to new developments in the market. Here are two ways they contribute to this improvement.

(1)   Communication between employees, suppliers and customers:

IT, Provides the effective ways to communicate to an organization to its success with inside and outside. For any companies, email is the principal means of communication between employees, suppliers and customers. Email was one of the early drives of the internet, providing a simple and inexpensive means to communicate. Over the years, a number of other communications tools have also evolved, allowing staff to communicate using live chat systems. Voice over internet protocol (VoIP) telephones and smart-phones offer even more high-tech ways for employees to communicate.

(2)   Inventory Management Systems:

When it comes to managing inventory, Organizations need to maintain enough stock to meet demand without investing in more than they require. Inventory management systems track the quantity of each item a company maintains, triggering and order of additional stock when the quantities fall below a pre-determined amount. These Systems are best used when the inventory management system is connected to the point-of-sale (POS) system. The POS system ensures that each time an item is sold, one of that item is removed from the inventory count, creating a closed information loop between all departments.

(3)   Data Management Systems:

The days of large file rooms, rows of filing cabinets and the mailing of documents is fading fast. Today, most companies store digital versions of documents on servers and storage devices. These documents become instantly available to everyone in the company, regardless of their geographical location. Companies are able to store and maintain a tremendous amount of historical data economically, and employees benefit from immediate access to the documents they need.

(4)   Management Information System (MIS):

Storing date is only a benefit if that data can be used effectively. Progressive companies use that data as part of their strategic planning process as well as the tactical execution of that strategy. Management information systems (MIS) enable companies to track sales data, expenses and productivity levels. The information can be used to track profitability over time, maximize return on investment (ROI) and identify areas of improvement.

(5)   Customer Relationship Management (Improving Customer Service):

Companies are using IT to improve the way they design and manage customer relationships. Customer Relationship Management (CRM) systems capture every interaction a company has with a customer, so that, a more enriching experience is possible. If a customer calls center with an issue, the customer support representative will be able to see what the customer has purchased, view shipping information, call up the training manual for that item and effectively respond to the issue.

(03 marks)

(c)

(i) Calendar management – Microsoft Outlook / Calendly / Zoho Calendar / iCal /Google Calendar

(ii) Task management and reminders – Microsoft Project / Microsoft To-Do / Adobe Workfront / Tick Tick / Desktop Reminder / Todoist

(iii) Location tracking – Google Maps / Google Family Link / Find My Device / Traccer / GPSWOX / Geotab

(iv) Cloud-based storage of information – Dropbox / OneDrive / Google Drive / iCloud

(04 marks)
(Total 10 marks)

Suggested Answer for Question Three:

Chapter 02 - Information Technology Infrastructure

(Writing any three of the below characteristics would permit full marks)
(a)

1. Spreadsheet Software - MS Excel, Open Office writer, Google Doc etc.

2. Word processing software – MS Word, Open office writer, Google doc etc.

3. Customer Relationship Management (CRM) Software – Salesforce

4. Presentation Software - MS-PowerPoint, Open office impress, Google Presentation

5. Communication and Collaboration Tools - Microsoft Teams, Zoom, Skype, Google meet, Nextiva

6. Accounting Software - QuickBooks, Sage, Accpac, Oracle ERP, SAP

7. Task and Project Management Software – MS Project

8. Database Management software – MS Access, MY SQL

9. Web Browsers – Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari

10. Email – Google, Workshop, Outlook mail, Zoho mail, Apple mail

(03 marks)

(b)

(i)
(Writing any two of the below factors would permit full marks)

1. Data Volume and Scalability
The amount of data an organization handles both currently and in the foreseeable future is a critical factor. Consider whether the database can handle the expected data volume without compromising performance. Some databases are better suited for small-scale applications, while others are designed to handle large amounts of data (big data). Scalability is also essential – the chosen database should be able to grow as the data needs expand.

2. Data Structure and Complexity
Different databases are optimized for handling specific types of data structures. For highly relational data, a relational database (like MySQL, PostgreSQL) might be appropriate. If deal with unstructured or semi-structured data, a No-SQL database (like MongoDB, Cassandra) might be more suitable. By considering the complexity of data and select appropriate database can increase efficiency of storing and retrieving data.

3. Performance and Speed Requirements
The performance requirements of the applications play a vital role in selecting a database. Consider factors like read and write speeds, latency, and response times. Some databases excel at complex queries, while others prioritize fast read and write operations. Additionally, consider the database needs to support real-time analytics or other high-speed data processing tasks.

4. Data Consistency and Transactions
Data consistency and the ability to handle transactions (ACID properties) are critical for many applications, especially those involving financial transactions or critical data. Traditional relational databases are known for strong transaction support, ensuring data integrity. On the other hand, some No-SQL databases might lack strong consistency for improved scalability and performance.

5. Data Security and Compliance

Depending on the nature of the organization and the data it handles, data security and compliance might be paramount. Consider features like access control, encryption, and auditing capabilities. Make sure the chosen database meets the necessary security standards and compliance requirements for the business.

6. Development and Maintenance Ease

Consider the ease of development, maintenance, and administration of the chosen database. Some databases are more developer-friendly with user-friendly query languages and robust tooling, while others might require more specialized knowledge.

7. Cost Considerations

The cost of licensing, hardware, hosting, and ongoing maintenance should be factored into the decision. Some databases are open-source, while others require licensing fees. Additionally, consider the cost of scaling the database as company grows.

8. Integration with Existing Systems

If the organization already has existing systems and applications, compatibility and integration with those systems are essential. Consider whether the chosen database can seamlessly integrate with the existing current technology stack.

9. Future Growth and Flexibility

Anticipate the future growth and changes in the organization's data management needs. Ensure that the chosen database can adapt to evolving requirements and technologies.

(04 marks)

(ii) *(Writing any three of the below disadvantages would permit full marks)*

1. Complexity in Initial Setup
2. Data Redundancy and inconsistency
3. Costly (Costs will have to be incurred for licensing fees, maintenance costs, and hardware requirements)
4. Limited Flexibility for Complex Applications
5. Security concerns
6. Integrity problems
7. Data isolation
8. Difficulty and Complexity in accessing data
9. Atomicity issues
10. Atomicity issues

(03 marks)
(Total 10 marks)

Suggested Answer for Question Four:

Chapter 03 - Information Systems in Organizations

(a)

Criteria	Strategic Planning	Tactical Planning
Time Frame	• This is a long-term planning process that typically covers a period of three to five years or even more. • It involves setting the overall direction and priorities for the organization in alignment with its mission and vision.	• Tactical planning operates on a shorter time frame, usually one year or less. • It breaks down the strategies formulated during strategic planning into actionable steps and specific tasks.
Scope	• This includes the entire organization and involves decisions related to resource allocation, modification, major investments, mergers and acquisitions, and other high-level considerations.	• Tactical planning is more specific and deals with individual business units, departments, or teams. It focuses on optimizing processes, managing resources efficiently, and achieving short-term targets.
Flexibility	• While strategic plans are designed for the long term, they need to be adaptable to changing circumstances and market conditions. This often involves periodic reviews and adjustments.	• Tactical plans are more adaptable in the short term. They can be adjusted quickly in response to changing situations and feedback from ongoing operations.
Focus	• This focuses on the big picture. It involves defining the organization's goals, determining the markets it will compete in, and outlining the high-level approaches it will use to achieve its objectives. • Strategic planning answers questions like "Where do we want to go?" and "What are our major objectives?"	• Tactical planning is concerned with the details of how to implement the strategies. It translates the strategic goals into concrete actions, allocates resources, and assigns responsibilities. • Tactical planning answers questions like "How do we get there?" and "What specific steps do we need to take?"

Decision-Makers	Senior leadership and top-level executives, such as CEOs and board members, are primarily responsible for strategic planning decisions.	Middle management and operational teams are primarily responsible for tactical planning decisions. They translate the strategic objectives into day-to-day actions.

(04 marks)

(b)   *(Writing any three of the below activities would permit full marks)*

Operational management involves overseeing day-to-day activities and processes within an organization to ensure efficient and effective execution of tasks.

1. Operational managers are responsible for allocating resources such as labor, materials, equipment, and finances to various tasks and projects.

2. Operational managers create schedules and plans to ensure that work is organized and executed in a timely manner.

3. Ensuring the quality of products or services is a crucial aspect of operational management. Eg: implement quality control processes, establish standards, conduct inspections, and address any issues that arise to maintain consistent quality levels.

4. Operational managers monitor inventory levels, track usage patterns, and implement strategies to optimize inventory turnover while minimizing holding costs.

5. Operational managers continually monitor, guide performance metrics and key performance indicators (KPIs) to assess the efficiency and effectiveness of processes.

6. Operational managers facilitate training to their subordinates

7. Operational managers involve in handling the grievances of ground level workers.

8. Operational managers communicate issues, suggestions and recommendations of ground level workers to the higher level management.

9. Operational managers motivate their subordinates

(03 marks)

(c) (*Writing any two advantages and one disadvantage of the below activities would permit full marks*)

Advantages of Using ERP Systems,

1. Streamlined Processes

2. Data Accuracy and Visibility

3. Improved Decision-Making

4. Improved process efficiency

5. Cost saving

6. Accurate projections

7. Integrated information

8. Increased productivity

9. Mobility

10. Flexibility

11. Better customer service

12. Enhanced reliability

13. Customized reporting

14. Scalable resources

Disadvantages of Using ERP Systems,

1. High Implementation Costs
2. Complexity and Customization Challenges
3. Resistance to Change / Change Management challenges
4. Higher Dependency (Vendor Lock-In)
5. Challenges in Flexibility in certain instances
6. Requires a thorough training

(03 marks)
(Total 10 marks)

Suggested Answer for Question Five:

Chapter 04 - *Ethical, Social and Legal Environment for Information Systems*

(a)

1. LinkedIn - LinkedIn is widely recognized as the primary social media platform for professional networking and career development. It is designed specifically for connecting professionals, allowing them to showcase their work experience, skills, and accomplishments. LinkedIn provides following features and functions for professional use.

- Professional Networking

  LinkedIn's main focus is on connecting professionals across various industries. Users can connect with colleagues, peers, mentors, and potential employers, expanding their network.

- Resume and Portfolio

  Users can create a detailed profile that essentially acts as an online resume. They can list their work history, education, skills, and achievements, making it easy for others to understand their professional background.

- Industry Insights

  Users can follow companies and influencers in their industry, allowing them to stay updated on trends, news, and insights related to their field.

- Job Opportunities

  LinkedIn is a hub for job postings and recruitment. Users can search and apply for jobs, while recruiters can also actively search for potential candidates.

- Content Sharing

  Users can publish and share articles, posts, and updates related to their industry, demonstrating their expertise and thought leadership.

2. Twitter -Twitter is known for its fast-paced nature and casual interactions, it can also be a valuable platform for professionals to engage in industry conversations and share insights. Twitter provides following features and functions for professional use.

- Microblogging -

  Twitter's character limit encourages users to share concise and focused information.

Professionals can use this format to share quick tips, thoughts, and updates related to their field.

- Networking and Engagement-

Professionals can follow and interact with industry experts, thought leaders, and peers. Engaging in conversations and sharing valuable content can help establish their credibility and expand their network.

- Real-Time Updates-

Twitter is great for staying up-to-date with breaking news, industry trends, and events happening in real-time.

- Hashtags-

Hashtags allow users to join conversations on specific topics. Professionals can use relevant hashtags to reach a broader audience and connect with others interested in the same subjects.

- Visual Content-

Twitter supports images, videos, and GIFs. This enables professionals to share visual content such as info-graphics, presentations, and short videos to enhance their content and engage their audience.

(04 marks)

(b)
- **Computer Crimes Act No 24 of 2007 –**

The Computer Crimes Act No. 24 of 2007 provides for the identification of computer crimes and stipulates the procedure for the investigation and enforcement of such crimes. The basis of the Computer Crimes Act No. 24 of 2007 is to criminalize attempts at unauthorized access to a computer, computer program, data or information. It also contains a provision to deal with unauthorized use of computers regardless of whether the offender had authority to access the computer.

- **Payment and Settlement Systems Act No 28 of 2005 –**

The main goal is to take attempts at unauthorized access to a computer, Computer program, data, or piece of information illegal. Also, it has a clause that addresses computer misuse, regardless of whether the perpetrator was authorized to use the computer.

- **Electronic Transactions Act No 19 of 2006 –**

The most relevant legislation for use of ICT in government and establishment of e-government services is the electronic transactions Act No. 19 of 2006. The Electronic Transactions Act was brought in to operation with effect from 1st October 2007 (vide Gazette Extraordinary No.1516/25 of 27th September 2007).

- **Payment Devices Fraud Act No 30 of 2006 –**

Provision of payment devices fraud act no.30 of 2006 help to prevent the possession and use of unauthorized or counterfeit payment devices, to create offences connected with the possession or use of unauthorized payment devices, to protect persons lawfully issuing and using such payment devices, to make provision for the investigation, prosecution and punishment of offenders and to provide for matters connected.

- **Electronic Transactions (Amendment) Act No 25 of 2017 –**

Electronic transactions (amendment) act no. 25 of 2017 to recognize and facilitate the formation of contracts, the creation and exchange of data messages, electronic documents, electronic records and other communications in electronic from in Sri Lanka, and to provide for the appointment of a certification authority and licensing and authorizing of certification service providers.

(03 marks)

(c) (*Writing any three advantages of the below activities would permit full marks*)

1. Cloud computing allows to easily scale company resources up or down based on demand.

2. Cloud computing saves cost by eliminating the need for large upfront expenditures on hardware and infrastructure.

3. Cloud services enable remote access to applications and data from anywhere with an internet connection

4. Cloud service providers typically offer robust data backup and disaster recovery solutions.

5. Cloud service providers handle the maintenance and updates of the underlying infrastructure and software.

6. Cloud computing facilitate better security and equipment reliability

7. Cloud service providers provide management tools to assist

8. Easy to upgrade and storage

9. Prevent equipment from becoming obsolete

(03 marks)
(Total 10 marks)

Suggested Answer for Question Six:

Chapter 05 – Technology Trends Impacting on Information Systems

(a)

Crowd-funding is indeed a viable option for Nuwan to raise the capital needed to start up the manufacturing process for his automotive components.

Crowd-funding is a method of financing / raising capital where a large number of individuals contribute relatively small amounts of money to fund a project or venture. In this case, Nuwan can utilize crowd-funding platforms to present his automotive component manufacturing project to potential investors, enthusiasts, and the general public who are interested in supporting innovative ventures, and gather financial support, and build a community of supporters who are genuinely interested in seeing his automotive components come to life.

(04 marks)

(b) (*Writing any three of the below activities would permit full marks*)

1. Increased Efficiency and Productivity

One of the primary advantages of using robotics in organizations is the significant increase in efficiency and productivity. Robots are capable of performing tasks with high precision, consistency, and speed, which often surpasses human capabilities. This leads to faster production processes, reduced cycle times, and a higher output of goods or services. By automating repetitive and labor-intensive tasks, organizations can optimize their operations and allocate human resources to more complex and creative tasks.

2. Improved Quality and Consistency

Robots are programmed to perform tasks with a high degree of accuracy and consistency. This results in a reduction in human errors and variations, which can lead to improved product quality. For manufacturing functions, this is particularly crucial, as consistent quality contributes to customer satisfaction and a positive brand reputation. Organizations can rely on robots to maintain strict adherence to predetermined standards, resulting in

fewer defects and less waste.

3. Enhanced Workplace Safety

Many industries involve hazardous or physically demanding tasks that can pose risks to human workers. By integrating robotics, organizations can mitigate these risks and create a safer working environment. Robots can handle tasks that involve exposure to chemicals, extreme temperatures, heavy lifting, and other potentially harmful conditions. This helps in reducing the number of workplace accidents and injuries, leading to improved employee well-being and reduced liabilities for the organization.

4. Flexibility and Scalability

Modern robotics systems are designed to be adaptable and versatile. Organizations can reprogram or reconfigure robots to perform different tasks or accommodate changes in production demands. This flexibility is especially valuable in industries where product variations are common or where production requirements change frequently. Additionally, as the organization grows, robotic systems can be scaled up relatively easily to handle increased workloads without the need for extensive infrastructure changes.

5. Cost effectiveness

Installing robots to carry out certain tasks has become cheaper than hiring humans to do the same. Because many organizations have switched to robotics instead of humans. This has created an increased demand for Robots and resulted in price reduction of the robots as well.

(06 marks)
(Total 10 marks)

Suggested Answer for Question Seven:
(a)

Chapter 3 - Information Systems in Organizations

(*Writing any three of the below would permit full marks*)

1. **Transaction Processing System (TPS)**

Management Level: Operational Level

Purpose: In general TPS is used to monitor, collect, store and process data generated from all business transactions. In the context of the restaurant chain, TPS is used by the operational level management to handle day-to-day transactional activities such as processing customer orders, recording sales, managing inventory levels, and tracking supplier deliveries. TPS would also facilitate order processing, payment handling, and inventory management within each restaurant location.

2. **Office Automation System (OAS)**

Management Level: Operational and Middle Level

Purpose: OAS collect, merge and manage all the required organizations details and business processes by combining software and Hardware. In the context of a restaurant chain, OAS helps customers to place orders online through the mobile app and e-commerce website. Operational level managers can monitor and manage incoming orders and track inventory real time. Middle level managers can retrieve information real time pertaining to order trends and customer preferences.

3. **Customer Relationship Management System (CRM)**

Management Level: Middle and Strategic Level

Purpose: The CRM system is used to manage interactions with customers, collect and analyze customer data, and enhance customer satisfaction. Middle level managers can use CRM to understand customer preferences, feedback, and behavior to tailor marketing strategies. Strategic level managers can use CRM insights to make decisions about long-term customer engagement and loyalty programs.

4. Supply Chain Management System (SCM)

Management Level: Operational and Middle Level

Purpose: This system helps manage the flow of resources, raw materials and servicecs efficiently by providing real-time updates on availability of materials / resources, reorder points, and usage patterns. Operational level managers can ensure that each restaurant location has the required ingredients while minimizing excess stock. Middle level managers can analyze inventory data for cost control and optimizing supply chain operations.

5. Decision Support System (DSS)

Management Level: Strategic Level

Purpose: A Decision Support system summarizes information, exceptions, patterns and trends using analytical model which help in decision making. Hence it aggregates and analyzes data from various sources to provide insights that guide strategic decisions. Strategic level managers can use DSS to identify market trends, monitor competition, assess the effectiveness of marketing campaigns, and plan expansion strategies.

6. Management Information System (MIS)

Management Level: Middle /tactical level

Purpose: MIS would enable the manages to monitor the performance / progress of business processes to evaluate efficiency and effectiveness of the operations

7. Human Resource Management System (HRMS)

Management Level: Middle / tactical level

Purpose: HRMS enable the HR functional managers to keep track on the employee performance information. It also facilitate fetching payroll data to work out the payroll of the employees.

8. Executive Information System (EIS)

 Information tailor-made to the needs of executive and other decision-makers.

9.Business Expert Systems (BES)

Computer based system which artificial intelligence (AI) and neutral networks to recreate the performance level of a human expert thereby helping the business decision.

(06 marks)

(b)

Chapter 05 – Technology Trends Impacting on Information Systems

(Writing any two of the below would permit full marks)

1. Convenience for Customers

Mobile payment options provide a seamless and convenient way for customers to pay for their orders. They can complete transactions quickly using their smartphones, eliminating the need to carry cash or credit cards. This convenience can lead to higher customer satisfaction and loyalty.

2. Faster Transaction Processing

Mobile payments are typically processed much faster than traditional payment methods. This helps reduce waiting times at the restaurant and allows customers to place their orders and make payments efficiently. Faster transactions contribute to a smoother overall dining experience.

3. Enhanced Security

Mobile payment systems often incorporate advanced security features such as biometric authentication (fingerprint, face recognition), encryption, and tokenization. This can help protect customers' financial information and reduce the risk of fraud compared to traditional payment methods.

4. Promotions and Loyalty Programs

The mobile payment app can be integrated with loyalty programs, offering customers incentives, discounts, and rewards for using the app for payments. This encourages repeat business and helps the restaurant chain to effectively promote its products among the youth.

5. Access to Customer Data

Mobile payment systems collect valuable customer data, such as order history, preferences, and location information. This data can be used for targeted marketing campaigns, personalized offers, and improving the overall customer experience. Understanding customer behaviors and preferences can inform menu adjustments and promotional strategies.

(04 marks)

(c)

Chapter 03 - Information Systems in Organizations

The implementation of a Real-time Inventory Management System and a Customer Relationship Management (CRM) System in the restaurant chain can have several significant impacts on its operations and customer interactions.

- **Real-time Inventory Management System** –

Improved Inventory Control: With a real-time inventory management system, the restaurant can accurately track the quantities of ingredients and products in stock. This helps in preventing overstocking, reducing wastage, and ensuring that popular items are always available.

Enhanced Efficiency – Automation of inventory tracking eliminates the need for manual counting and reduces the chances of errors. This streamlines the supply chain and operational processes, leading to improved efficiency.

Optimized Ordering – The system can provide data-driven insights on demand patterns, helping the restaurant predict when certain items need to be restocked. This prevents stock-outs and ensures a continuous supply of products.

Cost Savings – By avoiding overstocking and minimizing wastage, the restaurant can save money on inventory costs. Additionally, optimized ordering can lead to better negotiation with suppliers and bulk discounts.

Faster Decision Making – Managers can make informed decisions about menu offerings and promotions based on real-time inventory data. They can identify which items are selling well and adjust their strategies accordingly.

- **Customer Relationship Management (CRM) System**

Personalized Customer Interactions: The CRM system allows the restaurant to gather and store customer data, including preferences, order history, and contact information. This enables personalized interactions and tailored marketing campaigns.

Targeted Marketing – With insights from the CRM system, the restaurant can design targeted marketing initiatives aimed at specific customer segments. For example, they can send promotions to customers who frequently order specific items.

Enhanced Customer Service – Customer service representatives can access customer information quickly, leading to more efficient issue resolution and improved customer satisfaction.

Feedback Utilization – The CRM system can collect feedback in terms of detailed analyics from customers, helping the restaurant understand areas for improvement. This can lead to menu adjustments, service enhancements, and better overall customer experiences.

Loyalty Programs – The CRM system can support loyalty programs where frequent customers are rewarded, fostering a sense of loyalty and encouraging repeat business.

Customer Retention – By understanding customer preferences and addressing their needs, the restaurant can build stronger relationships and increase customer retention rates.

(06 marks)

(d)

Chapter 05 – Technology Trends Impacting on Information Systems

Data visualization can be used as a tool in the restaurant chain to strengthen its information systems and expand its services. Data visualization refers to the representation of data in graphical or visual formats, making complex information more understandable, insightful, and actionable.

1   Clear Insights

The restaurant chain deals with a wide range of information, from sales data and customer preferences to inventory levels and order history. Data visualization can transform these raw figures into meaningful charts, graphs, and dashboards that provide clear insights. This enables decision-makers to quickly grasp trends, patterns, and correlations that might not be apparent from raw data alone.

2   Enhanced Decision-Making

In a competitive industry like the restaurant business, informed decisions are critical. Data visualization empowers managers to make informed choices based on real-time data. For instance, visualizing sales data can help identify popular items, peak hours, and slow periods, allowing the chain to optimize staffing, stock levels, and promotions.

3   Identifying Trends

Data visualization helps in spotting trends and anomalies using advanced analytics. For instance, if a certain dish's popularity has been declining in a specific province, visualizing the sales data could help identify the cause – perhaps a change in the recipe or a competitor's influence. Such insights allow the restaurant chain to make necessary adjustments swiftly.

4   Customer Understanding

The restaurant's efforts to promote its products among the youth can be greatly assisted by data visualization. By analyzing customer demographics, preferences, and spending patterns, the chain can tailor its offerings to better suit its target audience. Visual representations of customer segments and preferences make it easier to develop targeted marketing strategies.

5   Performance Tracking

Visualizing key performance metrics like revenue, expenses, and customer satisfaction scores provides an ongoing pulse on the business's health. This aids in setting realistic goals, monitoring progress, and adjusting strategies as needed.

6   Efficient Inventory Management

With the Real-time Inventory Management System, data visualization can help track ingredient usage, wastage, and stock levels. This prevents overstocking or understocking and ensures that the kitchen operates smoothly, reducing costs and avoiding shortages.

7   Supply Chain Optimization

Connecting with suppliers and managing the supply chain can be complex. Data visualization can streamline this process by presenting real-time inventory levels, order history, and supplier performance metrics. This allows for better negotiation, reduced lead times, and improved cost management.

8   Customer Relationship Management

Data visualization can offer insights into customer behavior and preferences, enabling personalized experiences and targeted marketing campaigns. By visualizing customer feedback and reviews, the restaurant can identify areas for improvement and track the effectiveness of their efforts.

9   Performance Communication

Data visualization aids in communicating performance and progress across the organization. With a Communication Management System, real-time data can be shared visually, making it easier for employees, managers, and stakeholders to understand and discuss performance trends.

10   Future Planning

As the restaurant chain expands and introduces new technology like robotic automation, data visualization can play a pivotal role in assessing the impact of these changes. Visualizing data related to production efficiency, customer satisfaction, and revenue can guide future planning and expansion strategies.

(04 marks)

(e)

Chapter 03 - Information Systems in Organizations

(Mentioning any five of the below would permit full marks)

Operating an e-commerce website can bring numerous benefits to a restaurant chain.

1. **Expanded Customer Base**

An e-commerce website removes geographical limitations, allowing the restaurant to reach a wider audience beyond its physical locations. Customers from different provinces and regions can easily access the website and place orders.

2. **Increased Sales and Revenue**

With online ordering, customers can conveniently browse the menu, place orders, and make payments without needing to visit the restaurant in person. This ease of use can lead to increased sales as customers are more likely to order when the process is streamlined and convenient.

3. **24/7 Availability**

Unlike physical stores with specific operating hours, an e-commerce website is accessible 24/7. This means customers can place orders at any time, even outside the restaurant's regular opening hours, which can lead to higher sales and customer satisfaction.

4. **Enhanced Customer Experience**

The e-commerce website allows customers to view the menu, customize orders, and make payments at their own pace. This self-service aspect enhances the customer experience by reducing wait times and minimizing order errors.

5. **Data Collection and Analysis**

The e-commerce website can collect valuable data about customer preferences, order history, and buying patterns. This data can be used to personalize marketing efforts, improve menu offerings, and optimize inventory management.

6. Simplified Business processes

E commerce enable to simplify the business process and speed up the operations leading to better productivity.

7. Enhances the brand image of the organization

8. Reduces Cost

Since e-commerce digitizes the information, it reduces paper work and eliminate duplication of tasks. This will lead to reduction of costs.

9. Diverse Payment Options

By offering multiple payment options, including online payment and cash-on-delivery, the restaurant caters to a wider range of customers' preferences. Some customers might prefer the convenience of digital payments, while others might feel more comfortable with cash payments upon delivery.

(05 marks)
(Total 25 marks)

End of Section C