Association of Accounting Technicians of Sri Lanka

Level II Examination - January 2023

Suggested Answers

(202) INFORMATION SYSTEMS IN DIGITAL ENVIRONMENT (ISD)

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THE ASSOCIATION OF ACCOUNTING TECHNICIANS OF SRI LANKA

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(202) INFORMATION SYSTEMS IN DIGITAL ENVIRONMENT

SUGGESTED ANSWERS

Fifteen (15) Compulsory Questions
(Total 25 Marks)

SECTION - A

Suggested Answers to Question One:

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

(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

(a)

1. Streamlining Finance operations
2. Improving efficiency and speed of processing financial transactions
3. Risk Management
4. Data analytics
5. Improve Security
6. Reducing cost of Business operations
7. Facilitate Online Banking
8. Digital Payment solutions

(02 marks)

(b)

Personal Information Management (PIM) can be used in various ways to improve staff performance in organizations in the financial sector as mentioned below;

i. Efficient Task Management - Personal Information Management tools such as calendars, to-do lists and task managers help staff in the financial sector to manage their tasks more efficiently. By organizing their schedules, setting priorities and deadlines, and tracking their progress, staff can ensure that their tasks are completed on time and to a high standard. This helps to improve overall productivity and reduces the likelihood of missed deadlines or incomplete tasks.

ii. Enhanced Collaboration - Personal Information Management tools can also facilitate better collaboration among staff in the financial sector. By sharing calendars, schedules, and task lists, staff can work together more effectively, ensuring that everyone is aware of their responsibilities and deadlines. This helps to avoid confusion and miscommunication and promotes a more cohesive team dynamic. Additionally, PIM tools that facilitate document sharing and version control can further enhance collaboration by allowing staff to work on documents simultaneously and track changes, reducing the likelihood of errors and duplication of work.

iii. Facilitating Information Availability : Personal Information Management (PIM) involves methods and procedures to store retrieve and show information such as files, emails, bookmarks and multimedia data the explosion of digital information,

electronic publishing and web based information etc.

iv. Helps in Contact management, Calendar management, Reminders and Noted, Location tracking, Expense management, and Health and wellbeing management.

(04 marks)

(c)

An organization in the financial sector can obtain several advantages by using information systems.

1. **Improved Efficiency**

By automating financial processes, such as accounting, customer service, and risk management, information systems can significantly improve efficiency within the organization. By reducing the need for manual processes, organizations can complete tasks more quickly and accurately, reducing errors and improving the speed of transaction processing. This not only increases productivity but also reduces operational costs and allows organizations to handle a larger volume of transactions.

2. **Enhanced Decision Making**

The financial sector generates a vast amount of data, and information systems can help organizations collect, store, and analyze this data to make informed decisions. By using analytics and machine learning algorithms, organizations can identify patterns, trends, and risks in real-time, allowing them to make better decisions faster. This can help organizations to manage risk, identify new business opportunities, and improve their overall performance.

3. **Improved Customer Service**

Information systems can help organizations to improve customer service by providing customers with easy access to their accounts, allowing them to view their transaction history and make payments or transfers online. This not only improves customer satisfaction but also reduces the workload on staff, allowing them to focus on more complex tasks that require human intervention. Additionally, information systems can help organizations to personalize their services, by providing customers with targeted offers and recommendations based on their transaction history and other data points.

4. To improve the organization's responsiveness to new development

Processing data gathered from a diverse range of channels (e.g. sales, web analytics, inventory control, customer feedback, industry data etc) which if handled correctly, can flag developing issues and be the impetus for important strategic decisions and facilitating the implementation of the decisions that have been made, through innovative and (hopefully) cost effective options, some of which is might be possible to build in-house.

5. To change the basis of competition in industry

Frequently in industry, a degree of complacency can occur when individual businesses no longer strive to distinguish themselves from their competitors. A certain equilibrium has been obtained and the businesses might be doing "okay". However for organizations that aim to grow market share; improve visibility; or wish to become the preferred vendor or service provider, ICT/technology can help them achieve those goals. Again ICT/technology can be instrumental streamlining, optimizing and automating certain internal internal processes, which can reduce delays, human error and the complexity of certain processes. Introducing operational efficiencies that can reduce costs and improve the bottom line implementing new measures that can ultimately add value to the customer and improve his or her experience with the organization.

6. To improve the organization's overall performance

ICT can introduce a paradigm shift in organizations by helping them to reevaluate among other things, what might be possible, how they can perform better and what new services and quality standards should be introduced. This point may be particularly applicable to micro, small and medium sized businesses, many of which have limited resources, and might be looking for ways to take their operations to the next level.

(04 marks)
(Total 10 marks)

Suggested Answer for Question Three:

Chapter 02 - Information Technology Infrastructure

(a)
(i)

A Database Management System (DBMS) is a software system that allows users to create, store, manipulate, and access data in a database while facilitating as a repository for collection of computerized data file. In a DBMS, data is organized into tables or files, with each table consisting of one or more columns and rows. The DBMS allows users to define the structure of the database, create and modify tables, and set constraints on the data to ensure its integrity and consistency.

The DBMS also provides a way to interact with the database, allowing users to perform operations such as adding, modifying, and deleting data, as well as querying the data to retrieve information. In addition, the DBMS manages the security of the database, controlling access to the data to ensure that only authorized users can access it. Overall, a DBMS provides an efficient and reliable way to manage and access large amounts of data, making it an essential tool for many organizations and applications.

(02 marks)

(ii)

- MySQL
- PostgreSQL
- MongoDB
- SQLite
- MariaDB
- Redis
- Apache-Hadoop
- Cubrid
- Firebird

(02 marks)

(b)

1. **Data Validation** - The DBMS checks the data entered into the database to ensure that it meets the specified criteria. This includes ensuring that each data entry conforms to the data type, format, range, and other constraints specified in the database schema.

2. **Data Dictionary Facility –** Data dictionary is where the DBMS stores definitions of the data elements and their relationships (metadata). The DBMS uses this function to look up the required data component structures and relationships. When programs access data in a database they are access through the DBMS. This function removes structural and data dependency and provides the user with data abstraction. The Data Dictionary is often hidden from the user view and used by database administrators.

3. **Data Integrity Checks** - The DBMS ensures that the data in the database is accurate and consistent. It does this by enforcing rules and constraints on the data, such as primary key constraints, unique constraints, foreign key constraints, and check constraints. Also DBMS enforces rules to reduce unnecessary data duplication, which is called “data redundancy”. This minimizes data being stored unnecessarily in more than one place ensuring data consistency.

4. **Transactions Management** - This ensures DBMS that all the updates in a given transaction are completed or not. All transactions must follow what is called the ACID properties.

5. **Multiuser Access Control** - Data integrity and data consistency are the basis of this function. Multiuser access control is a very useful tool in a DBMS, it enables multiple users to access the database simultaneously without affecting the integrity of the database.

6. **Backup and Recovery Management** - The DBMS provides tools for backing up and restoring the database in case of a failure or disaster. This ensures that data can be

recovered and restored to its previous state in case of data loss or corruption. This helps to maintain data safety and integrity.

7. **Database Communication Interfaces-** This refers to how a DBMS can accept different end user request through different network environments. An example of this can be easily related to the internet. A DBMS can provide access to the database using the application runs on Internet through a web-browser such as Chrome, Mozilla Firefox, and Internet Explorer.

8. **Database Access Languages & Applicant Programming Interfaces -** A query language is a nonprocedural language. An example of this is SQL (structured query language). SQL is the most common query language supported by the majority of DBMS vendors. The use of this language makes it easy for user to specify what they want done without the headache of explaining how to specifically do it.

9. **Security Management -** This is one of the most important and mandatory functions in any DBMS. Security management sets rules that determine access levels for specific users that are allowed to access the database. Users are given a username and password or sometimes through biometric authentication (such as a fingerprint or retina scan). This function sets restraints on what specific data any user can see or manage.

10. **Data Storage Management -** This refers to storage of data and any related data entry forms or reports, data validation rules, procedural codes and other data formats. This allows to hide how data is stored or manipulated for users.

(04 marks)

(c)

When selecting a suitable internet service provider (ISP), several factors should be considered. Some of the essential factors include,

i. Availability - The first factor to consider is the availability of the ISP in your location. Not all ISPs are available in all areas, so it's important to check if the ISP offers service in your area.

ii. Connection type - Different ISPs use different technologies to provide internet connectivity. Common connection types include DSL, cable, fiber-optic, and satellite. It's essential to select an ISP that offers a connection type that is suitable for your needs and budget.

iii. Speed - The speed of the internet connection is crucial, especially for activities such as video streaming, online gaming, uploads and large file downloads. Different ISPs offer different speeds, so it's important to select an ISP that offers a speed that meets your needs.

iv. Cost - The cost of the internet service is an important consideration. Different ISPs offer different pricing plans, and it's essential to select a plan that is within your budget.

v. Customer service and support - The quality of customer service and support offered by the ISP is important, especially in case of technical issues or outages. It's important to select an ISP that offers reliable customer service and support.

vi. Additional features - Some ISPs offer additional features, such as email accounts, antivirus software, and parental controls. It's important to consider if these additional features are useful to you.

vii. Terms and Conditions of the ISP

(02 marks)
(Total 10 marks)

Suggested Answer for Question Four:

Chapter 03 - Information Systems in Organizations

(a)

Criteria	DSS	MIS
Parties that mostly use the system	Decision Support Systems (DSS) can be used by management at various levels within an organization, depending on the specific needs and goals of the system. However, DSS systems are typically used by top-level management, such as senior managers who are responsible for making strategic decisions that affect the organization as a whole.	Management Information Systems (MIS) are typically used by middle managers / tactical managers at the middle level in an organization. These managers need timely and accurate information to make informed decisions about the organization's operations and future plans.
Nature of inputs	The inputs to a DSS can come from various sources and can include both internal and external data. • Internal data: This includes data generated by the organization,	The inputs to MIS feed from different sources, and they are typically structured, organized, and summarized to support the management's decision-making

	such as sales data, inventory levels, employee performance, and financial reports. • External data: This includes data from external sources such as market research reports, competitor analysis, economic indicators, and industry trends. • Model inputs: DSS often uses mathematical or analytical models to simulate scenarios and predict outcomes. The inputs to these models can include historical data, assumptions, and parameters. • User inputs: Users of the DSS can also provide inputs in the form of criteria, preferences, and constraints. These inputs can help the system tailor the output to the user's specific needs.	process. • Transactional data: This includes data generated by the organization's day-to-day operations, such as sales transactions, inventory movements, production volumes, and employee time sheets. • Financial data: This includes data related to the organization's financial performance, such as income statements, balance sheets, cash flow statements, and budget reports. • Performance data: This includes data related to the organization's operational performance, such as production output, quality metrics, customer satisfaction scores, and employee productivity. • External data: This includes data from external sources, such as market research reports, customer feedback, industry trends, and economic indicators. • User inputs: Users of the MIS can also provide inputs in the form of requests, queries, and filters. These inputs can help the system tailor the output to the user's specific needs.

Main objective	The main objective of a Decision Support System (DSS) is to provide decision makers with the necessary information and tools to make informed decisions. A DSS typically integrates data, models, and user interfaces to support decision-making activities. It helps decision makers to identify and evaluate alternatives, assess risks, and analyze the potential outcomes of different courses of action. This support ad-hoc decision making by providing solutions to situations that are unique and rapidly changing.	The main objective of a Management Information System (MIS) is to provide accurate, timely, and relevant information to support decision-making at middle levels of management. A MIS is designed to collect, process, store, and disseminate information to support the planning, operation, and control of an organization. The key features of a MIS include the ability to integrate data from various sources, provide reports and analyses to support decision-making, and enable managers to monitor and control organizational performance by analyzing past information.

(06 marks)

(b)

Business Intelligence (BI) is the process of collecting, analyzing, and presenting data to help organizations make informed decisions. BI systems typically focus on historical data, which is used to create reports, dashboards, and visualizations that provide insights into past performance. BI systems are designed to support strategic decision making by providing high-level overviews of organizational performance. Business Intelligence adopts techniques such as report generation, automated monitoring, altering functions, dashboards and ad hoc querying.

Business Analytics (BA), on the other hand, involves using data to identify trends and patterns, and to make predictions about future performance. BA systems typically use advanced statistical and machine learning techniques to analyze data and create models that can be used to make predictions about future events. BA systems are designed to support tactical and operational decision making by providing detailed insights into specific areas of organizational performance. Business Analytics adopts techniques such as statistical and quantitative analyses, data mining and predictive modelling.

(04 marks)
(Total 10 marks)

Suggested Answer for Question Five:

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

(A) (a)

1. **Reduced academic performance**

Spending too much time on social media can distract students from their studies, leading to poor academic performance. Social media can be addictive, and students may find themselves spending hours scrolling through their feeds, chatting with friends, or watching videos instead of focusing on their studies. This can lead to poor grades, missed assignments, and other academic problems.

2. **Mental health issues**

Over usage of social media can also have negative effects on students' mental health. Social media can be a source of stress, anxiety, and depression, especially when students compare themselves to others and feel that they are not doing well as others. Social media can also expose students to cyber bullying, which can be devastating to their self-esteem and mental well-being. In extreme cases, over usage of social media can lead to addiction, social isolation, and other mental health issues.

3. Cyber Bullying

Cyber bullying, which is sometimes referred to as online social cruelty or electronic bullying, has been defined as an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself.

4. Hacking

Hacking is process of identifying the weaknesses of a system or loopholes in a network and private details are accessed. This process commonly results in the breaching of one's privacy and confidential information.

5. Addiction

The addictive part of the social media is very bad and can disturb personal lives as well. The teenagers are the most affected by the addiction of the social media. They get involved very extensively and are eventually cut off from the society.

6. Loss of reputation

Social media can easily ruin someone's reputation just by creating false story and spreading across the social media. Similarly, businesses can also suffer losses due to bad reputation being conveyed over the social media.

(04 marks)

(b)

Privacy can be described as refers to the ability of individuals to control their personal information and to keep it away from public knowledge or unauthorized access. It is an important right that allows individuals to maintain their autonomy and to protect themselves from harm, such as identity theft, stalking, or discrimination.

Social media can affect students' privacy in several ways. For example, students may unknowingly share personal information on social media platforms that can be used to identify them or to gain access to their private information. This can include things like their name, address, phone number, date of birth, or other sensitive information.

Another way that social media can affect students' privacy is through the collection and use of their personal data by social media companies. Social media platforms often collect data about users, such as their browsing history, location, and interests, and use this data to target ads or to sell to third-party companies which can damage the Student's privacy while exposing them to Security risks. This can also lead to privacy violations, as students may not be aware of how their personal data is being used or who has access to it.

(03 marks)

(B)

Confidentiality and availability are two fundamental concepts of information security. They refer to different aspects of protecting information and ensuring that it is available to those who need it while being kept confidential and secure from unauthorized access.

Confidentiality means protecting data, in all its forms, from unauthorized access throughout its entire lifecycle (from data creation to data destruction). Unauthorized access includes access by individuals not affiliated with the underlying organization storing the data (e.g. criminals and hackers). It also includes access by individuals within an organization who purposefully exceed their scope of authority in accessing information (e.g. individuals looking up the records of celebrities or other targeted individuals when they have no professionally legitimate reason to do so.) Confidentiality is the information security

concept most often implicated when and organization experiences as data breach.

Availability means ensuring that data are available when needed and that IT systems are operating reliably. Stakeholders can ensure data availability in a number of ways, such as designing IT systems that are "redundant" (e.g., installed in such a way that a failure of one component will not cause and entire system to fail) and resistant to attacks, as well as ensuring that users back up data regularly. Common intentional and malicious information security threats to IT systems and data.

(03 marks)
(Total 10 marks)

Suggested Answer for Question Six:

Chapter 05 – Technology Trends Impacting on Information Systems

(a)

Micropayments through mobile phone applications offer a variety of advantages to various stakeholders. Some of these advantages are:

- **For Individual Consumers -**
    1. Convenience: Micropayments through mobile phone applications are quick and easy, allowing customers to make payments on-the-go without needing to carry cash or cards.
    2. Security: Mobile micropayments are secure, with many apps incorporating two-factor authentication and encryption to protect customer data.
    3. Affordability: Micropayments allow customers to pay for goods and services in small amounts, making it easier to afford services that may have been out of reach before.
    4. Rewards: Some mobile payment apps offer rewards and discounts for using their platform, which can incentivize customers to continue using the service.

- **For Merchants / Business organizations-**
    1. Lower transaction fees: Micropayments often have lower transaction fees than traditional payment methods, which can save merchants money.
    2. Increased sales: Micropayments can increase sales, as they allow customers to make quick and easy payments without the hassle of cash or card transactions.
    3. Reduced fraud: Mobile micropayments can reduce the risk of fraud, as they often have built-in fraud protection features such as two-factor authentication and encryption.

4. Customer data: Merchants can use mobile micropayments to collect data on customer behavior, which can be used to improve marketing and sales strategies.
5. Increased revenue: Mobile micropayments can generate revenue for financial institutions through transaction fees and interest.
6. Increased customer loyalty: Offering mobile micropayment services can increase customer loyalty and retention, as customers are more likely to stick with a financial institution that offers convenient and secure payment options.
7. Improved data analytics: Financial institutions can use the data collected through mobile micropayments to improve their data analytics capabilities and gain insights into customer behavior and spending patterns.
8. Reduced costs: Mobile micropayments can help reduce costs associated with traditional payment methods, such as printing and distributing paper checks.

- **For operators**

A significant increase in text messaging (SMSs) revenues and a large drop in customer dropouts (lower churn rate)

- **For consumers**

m-commerce is more secure and flexible than cash, allowing consumers to make payments remotely from anywhere, anytime.

- **For banks**

An increase in their customer reach and the added cash float available to the bank.

- **For micro-finance institutions**

The ability to advance funds into remote areas and have regular repayments that do not significantly inconvenience the user.

- **For service industries and utilities**

The ability to get payments electronically from a significant person of the overall population.

(04 marks)

(b)

1. Donation-based crowd-funding

Donation-based crowd-funding is a model where people donate money to a project or cause without expecting any financial return. This model is often used for charitable causes, social and creative projects, and personal emergencies.

Example of donation-based crowd-funding include

- GoFundMe
- JustGiving

2. Rewards-based crowd-funding

The crowd funder transfers money with the expectation of a profit or a reward, (it may be in the form of a token gift or an exclusive product or a service offered by the startup company). This model is often used for startups, small businesses, and real estate projects. Some examples for this category is;

- Kickstarter
- Indiegogo
- Seedrs

3. Lending based or Peer-to-Peer(P2P)

This is the trending category with the repaid growth of crowd funding. The crowd funder lends money to individuals or companies in return for interest. The majority operate as commercial platforms in direct competition with other financial intermediaries. Example for this category

KIVA - is providing small loans to farmers. NGOs and SMEs (small and medium-sized) enterprises)

4. Equity based crowd funding

This sis a new and rapidly growing model in crowd funding where, crowd funder purchases equity in a company.

(06 marks)
(Total 10 marks)

End of Section B

Five (05) Compulsory Questions
(Total 25 Marks)

SECTION - C

Chapter 2 - Information Technology Infrastructure

(a)

(i)

1. Smartphone
2. Tablet / Notebook computer
3. PDA

(02 marks)

(ii)

Smartphones

Smartphones are a type of mobile computing device that has become ubiquitous in today's world. They have many features that can be useful to employees, including internet connectivity, access to email, and various productivity apps. With a smartphone, employees can communicate with each other and customers, access product information, and manage their schedules. Smartphones are also easy to carry around and can be used for both stationary and mobile work settings.

Tablet / Notebook / Laptop computer

Tablets are another type of mobile computing device that can be useful to employees. They are larger than smartphones and provide a larger screen area, making them ideal for tasks that require more visual information or data entry. Tablets can be used for tasks such as inventory management, point-of-sale transactions, and product demonstrations. They are also lightweight and portable, making them easy to carry around for mobile work settings.

PDA

Monitoring delivery schedules/ manager content on social media pages relevant to the business/ contact suppliers, offices, partners, etc.

(02 marks)

Chapter 3 - Information Systems in Organizations

(b)

Good Life can obtain several advantages by moving their currently fragmented software applications to a single centralized database management system.

1. Improved data integrity and accuracy

By centralizing all data in a single database management system, Good Life can improve data integrity and accuracy. Data inconsistencies and errors resulting from fragmented software applications can be eliminated, and data can be updated and accessed in real-time, ensuring that all employees have access to the same information.

2. Streamlined operations

A centralized database management system can help streamline operations by automating routine tasks and providing real-time data insights. By reducing the amount of time and effort required to manage data across different software applications, employees can focus on more important tasks, such as improving customer service or inventory management.

3. Improved decision-making

A centralized database management system can provide better data-driven insights that can help managers make informed decisions. With a centralized database, managers can easily access up-to-date data and generate reports that can be used to identify trends, forecast sales, and optimize operations.

4. Cost savings

A centralized database management system can also help Good Life save costs by reducing the need for multiple software licenses and IT infrastructure. It can also help reduce the likelihood of errors and inconsistencies that can result in costly mistakes or inefficiencies. Additionally, a centralized database management system can be scaled as the organization grows, reducing the need for costly software upgrades or replacements in the future.

(04 marks)

Chapter 3 - Information Systems in Organizations

(c)

(i)

Transaction Processing Systems (TPS) are information systems that process and record day-to-day business transactions. Some key features of a TPS are,

1. Real-time processing - TPS are designed to process transactions in real-time, meaning that they capture and process transactions as they occur, without delay.

2. Batch processing - Some TPS may also support batch processing, where transactions are processed in batches at specific intervals, such as daily or weekly.

3. Data collection - TPS collect data from various sources, such as point-of-sale (POS) systems, barcode scanners, and online orders, and store this data in a central database.

4. Accuracy - TPS are designed to ensure the accuracy of data, and should have measures in place to prevent data duplication, errors, and inconsistencies.

5. Security - TPS should have security features in place to protect the confidentiality, integrity, and availability of data. This may include access controls, data encryption, and backup and recovery mechanisms.

6. Scalability - TPS should be designed to handle large volumes of transactions and users, and should be scalable to meet growing business needs.

7. Reliability - TPS must be reliable and available 24/7, with minimal downtime or interruptions. This may include measures such as redundant hardware, backup power supplies, and disaster recovery plans.

8. Audit trail - TPS should maintain an audit trail of all transactions, including user activity and system events. This can be used to identify errors, fraud, or other issues.

(03 marks)

(ii)

Good Life can use Transaction Processing Systems (TPS) to automate and streamline their business operations, which will help to reduce errors, increase efficiency, and improve customer service. Following are some possible TPS applications that Good Life can implement to enhance their business operations,

1. Point of Sale (POS) System - A POS system can be used to process customer transactions, manage inventory, and generate sales reports. This will help Good Life to track sales, monitor inventory levels, and identify popular products.

2. Inventory Management System - An inventory management system can be used to track stock levels, monitor stock movement, and generate reorder alerts. This will help Good Life to maintain optimal stock levels and avoid stock outs.

3. Customer Relationship Management (CRM) System - A CRM system can be used to manage customer data, track customer interactions, and generate sales leads. This will help Good Life to improve customer service and identify opportunities for growth.

4. Supply Chain Management (SCM) System - An SCM system can be used to manage the flow of goods and services from suppliers to customers. This will help Good Life to optimize their supply chain and reduce costs.

5. Human Resource Management (HRM) System - An HRM system can be used to manage employee data, track employee performance, and generate payroll reports. This will help Good Life to manage their growing employee base more efficiently and effectively.

(04 marks)

Chapter 3 - Information Systems in Organizations

(d)

Good Life can apply data mining techniques to analyze their market in several ways,

1. Customer Segmentation - Good Life can use data mining techniques to segment their customer base into different groups based on their demographic, geographic, and purchasing behavior. This will help them to identify their target market and tailor their marketing strategies accordingly.

2. Sales Forecasting - Good Life can use data mining techniques to analyze historical sales data and predict future sales trends. This will help them to optimize their inventory levels and avoid stock outs.

3. Product Recommendation - Good Life can use data mining techniques to analyze customer purchasing behavior and recommend related products to customers. This will help them to increase their sales and improve customer satisfaction.

4. Price Optimization - Good Life can use data mining techniques to analyze customer purchasing behavior and competitor pricing data to optimize their product pricing. This will help them to remain competitive in the market and maximize their profit margins.

5. Basket Analysis - Good Life can use data mining techniques to analyze customer purchase patterns and identify which products are often purchased together. This will help them to optimize their product placement and increase their sales.

(04 marks)

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

(e)

Good Life can take several measures to improve their cyber security and protect their data against the various threats posed by the online environment.

1. Implementing Strong Password Policies - Good Life should ensure that employees use strong passwords for their accounts and change them regularly. Additionally, multi-factor authentication (MFA) should be implemented to add an extra layer of security to employee accounts.

2. Regularly Updating Software and Security Patches - Good Life should ensure that all software, including operating systems, applications, and security solutions, are regularly updated to their latest versions. This will help to address known vulnerabilities and protect against malware attacks.

3. Employee Cyber security Awareness Training - Good Life should provide regular cybersecurity awareness training to employees to help them recognize and respond to potential cybersecurity threats. This training should include phishing attacks, social engineering, and other forms of cyber-attacks.

4. Encrypting Sensitive Data - Good Life should ensure that all sensitive data, including customer data and financial data, is encrypted both during storage and transmission. This will help to protect against data breaches and unauthorized access.

5. Regularly Backing Up Data - Good Life should regularly back up all important data to an offsite location, in case of data loss due to a cyber-attack or any other unforeseen event.

6. Implementing Firewalls and Antivirus Software - Good Life should install and maintain firewalls and antivirus software to protect against malware attacks, spam emails, and other forms of cyber-attacks.

7. Conducting Regular Security Audits - Good Life should conduct regular security audits to identify potential vulnerabilities and implement necessary measures to address them.

(06 marks)

(Total 25 marks)

End of Section C

Notice:

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