



Association of Accounting Technicians of Sri Lanka

Level II Examination - July 2024

Suggested Answers

**(202) INFORMATION SYSTEMS IN DIGITAL ENVIRONMENT
(ISD)**

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**(202) INFORMATION SYSTEMS IN DIGITAL
ENVIRONMENT**

Objective Test Questions (OTQs)
(Total 25 Marks)

SECTION - A

Suggested Answers to Question One:

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

(a)

	Data	Information
Dependency	Data is raw facts and figures that are unorganized, unprocessed, and without context and meaning on their own. Data is independent in its most raw state.	Information refers to data which has been processed, organized or structured in some way that it gives meaning to the user. Information is dependent on data.
Use in Decision Making	Data, by itself, usually has low instant utility for use in decision making because it lacks structure or context that may be necessary to inform decisions. Due to its raw nature, Data in its pure form is not used directly by the decision maker but rather relies on the processed information.	Information is data presented in structured ways, usually meaningful, permitting insight into the assessment of situations, prediction of outcomes, and selection of courses of action. The information is used directly in the process of decision making since it provides clarity, summarize, context, and relevance.

(04 marks)

(b)

i. The characteristic of quality of information highlighted in the scenario is, "Timeliness."

(01 mark)

ii. Timeliness refers to the availability of information when it is needed, ensuring that it is provided at the right time. Otherwise, the decision- making process might get delayed, and information becomes obsolete. As there is a time gap between data collection and information processing, we should try our best to reduce this time gap.

(02 marks)

(c) Explaining two points listed below adequately covers the requirements for achieving a score of 03 marks.

- **Advanced Analytics Tools to analyse the data** - Technology has introduced sophisticated data analytics tools and software that enable organizations to process large volumes of data quickly and efficiently. Tools such as predictive-analytics, machine-learning, and artificial-intelligence (AI) help in identifying patterns, trends, and insights that would be difficult to discern manually.
- **Automation of Decision Making Processes** - AI can be used to automate certain decision making processes and can provide insight that would have been impossible for human to recover.
- **Communication Platforms** - Technology has introduced various communication and collaboration tools, such as video-conferencing, instant-messaging, and collaborative platforms (e.g., Microsoft Teams, Slack). These tools facilitate effective communication among team members, regardless of their physical location.
- **Shared Data Repositories** - Cloud-based storage solutions enable teams to access and share data and documents seamlessly. This ensures that all stakeholders have access to the same information and can contribute to decision-making processes more effectively.
- **Increased Collaboration** - Enhanced communication tools promote better collaboration among team-members and departments. This collective input often leads to more well-rounded and informed decisions.
- **Streamlined Processes** - Shared data repositories and collaborative platforms streamline workflows, reduce the time needed to gather and disseminate information, and help avoid duplication of efforts. This efficiency supports quicker and more coordinated decision-making processes.
- **Predictions and Forecasts** - Techniques such as Machine Learning used to analyze historical data and makes predicting about future events. This can help to identify potential risks, forecast demand and optimize resource allocation.

(03 marks)

(Total 10 marks)

Suggested Answer for Question Three:

Chapter 02 - Information Technology Infrastructure

(a)

- i. **Operating systems** - Windows, Linux, Apple Mac OS
- ii. **Enterprise software** - SAP, Oracle ERP, Microsoft Dynamics 365, Veeva, Blue Lotus 360, Odoo
- iii. **Database management software** - Oracle Database, MySQL, PostgreSQL, MongoDB, Microsoft SQL Server, Sybase, Microsoft SQL, Apache-Hadoop, AWS, MS Azure, Google Drive, i cloud

(03 marks)

(b)

Customer Relationship Management (CRM) systems use databases to keep all customer information organized and accessible. This means that businesses can store details like contact info, purchase history, and preferences in one place.

Databases are essential to establish a CRM strategy in a company. A CRM strategy consists of acquiring and storing customer information, which allows managing relationships among the data. Properly categorized information allows enhancing important aspects of marketing communication.

(04 marks)

(c) Mentioning three points listed below adequately covers the requirements for achieving a score of 03 marks.

1. Accessibility
2. Cost Savings
3. Security
4. Disaster recovery
5. Improved Collaboration
6. Automation

(03 marks)

(Total 10 marks)

Suggested Answer for Question Four:

Chapter 03 - Information Systems in Organizations

(a) Mentioning three Management Information Systems with the purpose of each in brief as listed below adequately covers the requirements for achieving a score of 06 marks.

1. **Inventory Management System (IMS)** – Inventory Management System can be used to efficiently manage and control stock levels, reduce holding costs, and ensure product availability.
2. **Human Resources Information System (HRIS)** – HRIS can be used to streamline HR processes, improve employee management, and support workforce planning.
3. **Customer Relationship Management (CRM) System** – CRM can be used to enhance customer satisfaction, improve sales processes, and build stronger customer relationships.
4. **Sales Information System (SIS)** – Sales Information System can be used to monitor and analyze sales performance, forecast demand, and optimize sales strategies. Budgeting systems – All the long term and short term financial information overviews can be taken.
5. **Marketing Information System** – Marketing personal use MkIS to report on the effectiveness of past and current campaigns launched and use the lessons learned from them to plan future marketing campaigns.
6. **Business Intelligence System** – BIS use to make business decisions based on the collected data and information.
7. **Sales Force Automation System** - A specialized component of a CRM system that automates many tasks that are involved in sales functions.
8. **Knowledge Management System (KMS)**- The purpose of a KMS is to enable employees to gain access to the organization's sources of information and solutions.
9. **Financial Accounting System (FAS)**- This area of MIS is specific to departments handling with finances and accounting such as accounts payables and accounts receivables.
10. **Supply chain Management System(SCM)** – Manufacturing companies use SCM to track the flow of resources, raw materials, and services from purchase to all the way to shipping of the items.

(06 marks)

(b)

Data mining is a process that identifies patterns, correlations, and useful information from large data sets using statistical, mathematical, and computational techniques.

(02 marks)

(c) Stating two Data mining Applications as listed below adequately covers the requirements for achieving a score of 02 marks.

1. Sales and Customer Behavior Analysis
2. Supply Chain Optimization
3. Market Analysis
4. Fraud Detection
5. Customer Retention
6. Production Control
7. Science Exploration

(02 marks)

(Total 10 marks)

Suggested Answer for Question Five:

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

(a)

- Confidentiality
- Integrity
- Availability

(03 marks)

(b) Listing three acts listed below adequately covers the requirements for achieving a score of 03 marks

1. Computer Crimes Act
2. Electronic Transactions Act No. 19 of 2006.
3. Payment Devices Frauds Act No. 30 of 2006.
4. Intellectual Property Act
5. Information and Communication Technology Act
6. Payment and Settlement System Act
7. Right to the Information Act
8. Online Safety Act

(03 marks)

(c) Explaining two practices mentioned below adequately covers the requirements for achieving a score of 04 marks.

1. Use Energy-efficient Hardware

The IT team should choose energy-efficient servers, storage devices, and networking equipment that comply with Energy Star or other relevant environmental certifications. These devices are designed to consume less power and produce less heat, reducing the need for cooling and thus lowering overall energy consumption. This practice not only reduces the carbon footprint of the company but also leads to long-term cost savings through reduced electricity bills.

2. Implement Virtualization

Virtualization technology allows multiple virtual machines to run on a single physical server, reducing the number of physical servers needed. By consolidating workloads on fewer machines, Ceylon Crunchies can reduce power consumption and cooling requirements. This approach minimizes the physical space needed for IT infrastructure, leading to a smaller environmental footprint.

3. Adopt E-Waste Management Policy

During the upgrade, ensure that any old or obsolete equipment is responsibly recycled through e-waste recycling process. Proper disposal of e-waste prevents harmful substances from polluting the environment and allows for the recovery of valuable materials.

4. Reduce Paper Usage

The IT team should prioritize digital communication and documentation to minimize paper usage. Implementing digital signatures, cloud-based document management systems, and encouraging paperless meetings can significantly reduce the reliance on printed materials.

5. Utilize Computer Power Management Features

The IT team should configure all computers, servers, and peripherals to use energy-saving settings, such as automatic sleep mode, hibernate, and low-power states when not in use.

These features reduce the amount of energy consumed during periods of inactivity. Ensuring that all devices are set to power down or enter sleep mode after a certain period of inactivity will help decrease overall energy consumption.

6. Use refurbished computers and computer peripherals

Instead of purchasing brand-new peripherals like monitors, keyboards, and mice, the IT team should consider using refurbished or certified pre-owned equipment. Refurbished peripherals are often as reliable as new ones but come with a smaller environmental footprint because they extend the lifecycle of existing products and reduce the demand for new resources.

7. **Using thin client computer** – Users can choose to deploy thin-client computers, which draw about a fifth of the power of desktop PC.

8. **Using screensavers-** A blank screensaver conserves more power than a screensaver that displays moving images (animations), which continually interacts with the CPU.

9. **Refilling** - Refilling of ink cartridges and laser toners are cheaper and does not add to landfill. Hence should be carried out.

10. Switching off IT hardware devices should be turned off when not in use.

11. **Reuse-** An old computer should continue to be used if it meets the user requirements. Otherwise, it can be given to someone who needs it or the functional components may be used from a retired product.

12. **Eco-friendly Design-** Eco-friendly data center designs and use of environmentally friendly materials for constructions. Eco-designs make use of both natural light as well as green power, which is basically electricity and generated from solar or wind energy, to run the data center.

(04 marks)
(Total 10 marks)

Suggested Answer for Question Six:

Chapter 05 – Technology Trends Impacting on Information Systems

(a)

Cryptocurrency is a digital currency that uses cryptography to secure transactions, manage the creation of new units, and verify asset transfers on decentralized networks. Operating on block-chain technology, which records all transactions in a secure, distributed-ledger, cryptocurrencies are resistant to hacking and difficult for any single entity, such as a government or organization, to block, alter, or restrict transactions or access to the network. Unlike traditional currencies controlled by governments, cryptocurrencies operate without central authority, using cryptographic techniques to protect transaction data and consensus mechanisms like Proof of Work to ensure all network participants agree on the validity of transactions.

Mentioning any 02 examples mentioned below would be adequate

Examples of cryptocurrencies,

- i. Bitcoin (BTC)
- ii. Ethereum (ETH)
- iii. Litecoin (LTC)
- iv. Ripple (XRP)
- v. Dogecoin (DOGE)



(04 marks)

(b) Explaining two key advantages listed below adequately covers the requirements for achieving a score of 04 marks.

1. Consistency

Robots ensure uniform preparation and cooking of dishes, maintaining high quality and taste with every order.

2. Higher efficiency

They streamline kitchen operations by handling repetitive tasks, reducing preparation time, and increasing overall productivity.

3. Cost savings

Automation reduces labor costs and minimizes human error, potentially lowering expenses related to waste and rework.

4. Better safety

Robots can perform hazardous tasks, such as handling hot ingredients, reducing the risk of accidents and injuries in the kitchen.

(04 marks)

(c) Listing any two examples given below adequately covers the requirements for achieving a score of 02 marks.

1. Tables.
2. Flow diagrams.
3. Conceptual maps.
4. Histograms.
5. Graphs.
6. Maps.
7. Topographic maps.

(02 marks)

(Total 10 marks)



Suggested Answer for Question Seven:

Chapter 02 - Information Technology Infrastructure

(a)

i. Listing any two examples of application software under each category adequately covers the requirements for achieving a score of 04 marks.

- **Desktop publishing software.**

1. Adobe InDesign
2. QuarkXPress
3. Microsoft Publisher
4. Scribus
5. Affinity Publisher
6. Adobe FrameMaker
7. Serif-pageplus

- **Accounting software.**

1. QuickBooks.
2. ZOHO Books.
3. Xero.
4. FreshBooks.
5. MYOB
6. Sage Intacct.
7. Wave Accounting.
8. Peachtree
9. CashManager
10. Declaree



(04 marks)

- ii. **Explaining three drawbacks of DBMS adequately covers the requirements for achieving a score of 06 marks.**

Drawbacks of using a Data Base Management System (DBMS) for storing data.

1. Complexity

Implementing and managing a DBMS can be complex. It requires skilled personnel to design, maintain, and operate the database, which may involve significant training and resources.

2. Cost

DBMS software, along with the hardware needed to run it, can be expensive. Additionally, there are ongoing costs for maintenance, future-updates, and support.

3. Performance Overhead

While DBMSs offer many features and functionalities, they can introduce performance overhead, especially when handling large volumes of data or complex queries. This may slow down system performance.

4. Security risks

Although a DBMS can enhance security, it also becomes a central target for cyber-attacks. If not properly configured and maintained, vulnerabilities in the DBMS could lead to data breaches or unauthorized access.

5. Data redundancy and inconsistency

Since, data files and application programs were developed by different programmers over a long period of time, the various files are likely to have different structures and the programs may be developed in different programming languages. Also, the same information may be duplicated in several data files.

6. Difficulty in accessing data

if the application does not carry functions and feature for data manipulation data aces will be limited. For example, if a lecturer, needs to find out the names of all students who live within a particular area.

7. Data Isolation

Because date are scattered in various data files across organizational different functional areas and files may be in different formats, developing new application programs to retrieve the appropriate data is difficult.

8. Integrity problems

The data values stored in the database must comply or satisfy certain types of consistency

constraints.

9. Atomicity issues

A computer systems are vulnerable to many different types' of failures. If a failure occurs, the data be restored to the consistent state that existed prior to the failure.

10. Concurrent access anomalies

To increase the overall performance of the systems and to provide faster response, many systems allow multiple users to access and update the data simultaneously. Today, many large internet based retailers may have millions of users' access their systems and data simultaneously.

(06 marks)

Chapter 02 – Information Technology Infrastructure

(b) Listing three connectivity options mentioned below adequately covers the requirements for achieving a score of 03 marks.

1. Fiber optic broadband.
2. 3G/4G / 4G-LTE / 5G Mobile broadband.
3. Leased line.
4. DSL (Digital Subscriber Line).
5. Fixed wireless broadband.
6. ADSL (Asymmetric Digital Subscriber Line)
7. ISDN (Intergrated Services Digital Network)
8. High-Speed Packet Access (HSPA)
9. PSTN (Public Switched Telephone Network)

(03 marks)

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

(c) Listing three risks mentioned below adequately covers the requirements for achieving a score of 03 marks.

1. Cybersecurity threats
2. Internet connectivity and downtime
3. Data management and integrity risks
4. Dependency on third-party services

5. Compliance and regulatory risks
6. Risk on hardware and software
7. Human error
8. Virus attack
9. Data protection risk
10. Risk on data loss

(03 marks)

Chapter 03 - Information Systems in Organizations

(d) Explaining three benefits mentioned below adequately covers the requirements for achieving a score of 06 marks.

1. **Cost efficiency**

BPO can significantly reduce operational costs for Pigeon Express. By outsourcing vehicle fleet management and related services, the company can avoid the expenses associated with maintaining an in-house fleet, including purchasing, maintaining, and repairing vehicles. Instead, Pigeon Express can lease vehicles as needed and pay for services on a per-use basis, which can be more cost-effective and provide better budget control.

2. **Flexibility and scalability**

Partnering with a BPO provider allows Pigeon Express to scale its vehicle fleet and driver resources up or down based on demand. This flexibility is crucial for managing fluctuating delivery volumes, seasonal peaks, or expanding into new regions. The ability to quickly adjust resources without the long-term commitment associated with owning and maintaining a fleet provides a competitive edge and enhances operational agility.

3. **Access to expertise and advanced technology**

BPO providers specializing in fleet management typically have extensive industry experience and advanced technological tools. By outsourcing, Pigeon Express can leverage the expertise of these providers, including their sophisticated tracking systems, route optimization software, and best practices. This can lead to improved operational efficiency, better resource management, and enhanced service delivery.

4. Focus on core competencies

Outsourcing fleet management allows Pigeon Express to concentrate on its core business activities, such as logistics, customer service, and expanding its market presence. By delegating non-core functions to a specialized BPO provider, the company can focus its internal resources and efforts on areas that directly impact its growth and customer satisfaction, rather than getting bogged down by the complexities of fleet management.

5. Risk management and compliance

Managing a fleet involves various risks and compliance requirements, including regulatory adherence, insurance, and vehicle maintenance. A BPO provider that specializes in fleet management is experienced in managing these risks and ensuring compliance with relevant laws and regulations. By outsourcing, Pigeon Express can mitigate risks associated with fleet operations and ensure that its fleet management practices meet industry standards and legal requirements.

6. Competitive Advantage

Companies use BPO because it affords them greater operational flexibility. By outsourcing non-core and administrative functions, companies can spend time and resource on core business functions like customer relations and product leadership.

7. Higher quality and better performance

Because the BPO providers are performing the specific processes they're hired to do. And they are able to focus on providing only those processes at the highest levels, often with greater accuracy, efficiency and speed.

8. BPO offers businesses to access innovative technologies resources that they might not otherwise have exposure to. BPO partners and companies constantly try to improve their processes by adopting the up-to-date technologies and practices.

9. BPO also offers companies the benefits of quick and accurate reporting facilities, improve productivity and the ability to quickly reassign its resources, when necessary.

(06 marks)

(e) Stating three positive impacts mentioned below adequately covers the requirements for achieving a score of 03 marks.

1. Increased customer engagement
2. Enhanced brand visibility and awareness
3. Targeted marketing and promotions
4. Improved customer experience
5. Valuable insights and analytics
6. Reduce Marketing Cost
7. Provide better customer service and customer satisfaction

(03 marks)
(Total 25 marks)



End of Section C

Notice:

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