



**ASSOCIATION OF ACCOUNTING TECHNICIANS
OF SRI LANKA**

CURRICULUM 2025

PILOT PAPER

Level 02

**2802 - DIGITAL TRANSFORMATION &
INFORMATION SYSTEMS (DTA)**

A publication of the Education and Training Division

Association of Accounting Technicians of Sri Lanka
2802 - Digital Transformation & Information Systems (DTA)
Pilot Paper

Instructions to Candidates (Please Read Carefully)

Time Allowed:

Reading : 15 Minutes
Writing : 03 Hours

Structure of Question Paper:

- This paper consists of three Sections; Section A, Section B and Section C.
- All the questions of Section A, Section B and Section C should be answered.

Marks:

- Allocation of marks for each section:

Section	Marks
Section A	25
Section B	50
Section C	25
Total	100

- Marks for each question are shown with the question.
- The pass mark for this paper is 50.

Answers:

- All answers should be written in the booklet provided, answers written on the question paper will not be considered for marking.
- Begin your answer of each question on a new page.
- All workings should be clearly shown.
- Do not write on the Margins.

Answer Booklets:

- Instructions are shown on the front cover of each answer booklet.

Calculators:

- Candidates may use any calculator except those with the facility for symbolic algebra and differentiation.
- No programmable calculators are allowed.

Attached:

- Action verb checklist – Each question will begin with an action verb (excluding OTQ's).
- Students should answer the questions based on the definition of the verb given in the checklist.

(Total 25 marks)

Question 01

Select the most correct answer for question No **1.1** to **1.0**. Write the number of the selected answers in your answer booklet with the number assigned to the question.

- 1.1 Which one of the following best describes the function of an Enterprise Resource Planning (ERP) System?
- (1) File compression tool.
 - (2) A database backup utility.
 - (3) Integrated business process management system.
 - (4) A type of antivirus software.
- 1.2 Which one of the following is a primary benefit of using Business Intelligence (BI) tools in organizations?
- (1) Real-time system hacking.
 - (2) Automatic tax filing.
 - (3) Improved decision-making through data insights.
 - (4) Reducing electricity consumption in servers.
- 1.3 Which one of the following layers in IT infrastructure typically handles data storage and retrieval?
- (1) Application layer.
 - (2) Data layer.
 - (3) Interface layer.
 - (4) Control layer.

1.4 Which one of the following legal regulations is primarily concerned with personal data protection in Sri Lanka?

- (1) Electronic Transactions Act No. 19 of 2006.
- (2) Personal Data Protection Act No. 9 of 2022.
- (3) Computer Crimes Act No. 24 of 2007.
- (4) Online Safety Act No. 9 of 2024.

1.5 Which one of the following is an example of Green Computing?

- (1) Using high-performance graphic cards.
- (2) Keeping servers on all night.
- (3) Virtualizing servers to reduce hardware.
- (4) Printing documents multiple times.

1.6 Which one of the following is most associated with “prompt engineering”?

- (1) Blockchain.
- (2) AI language models.
- (3) Optical fiber networks.
- (4) Mobile app testing.

1.7 Select the correct statement with reference to the role of firewall in modern enterprises:

- (1) It boosts internet speed.
- (2) It prevents spam emails from reaching the inbox.
- (3) It acts as a barrier between trusted and untrusted networks.
- (4) It increases database processing speed.

1.8 Which one of the following is a key factor in selecting a database system for organizational use?

- (1) Number of employees.
- (2) Amount of physical office space.
- (3) Data accuracy and security requirements.
- (4) Location of the internet service provider.

1.9 Consider the following factors in relation to cybersecurity:

- (a) Phishing.
- (b) Ransomware.
- (c) System Debugging.

Of the above, common cyber security threats to an organization are:

- (1) (a) and (b) only.
- (2) (b) and (c) only.
- (3) (a) and (c) only.
- (4) All of the above.

1.10 You are given the following characteristics of high quality information in an information system:

- (a) Relevance.
- (b) Timeliness.
- (c) Excessive Volume

Of the above, the correct characteristics of quality of information are:

- (1) (a) and (c) only.
- (2) (b) and (c) only.
- (3) (a) and (b) only.
- (4) All of the above.

(02 marks each, 20 marks)

State whether each of the following statements **1.11** to **1.15** is True or False. Write the answer (**True / False**) in your answer booklet with the number assigned to the question:

- 1.11 The adoption of Fintech can increase an organization's vulnerability to cyber security threats, requiring to impellent stronger data protection measures.
- 1.12 Block Chain and Crypto Currency technologies are linked to each other.
- 1.13 People are not fundamental component of an information system.
- 1.14 Personal Information Management refers to tools and systems that help individuals to store, manage and retrieve their personal information.
- 1.15 International data protection regulations often require organization to appoint a Data Protection Officer (DPO) to oversee compliance.

(01 mark each, 05 marks)

(Total 25 marks)

End of Section A

Five (05) compulsory questions

SECTION B

(Total 50 marks)

Question 02

Lankan Threads, a growing fashion retail business with both physical stores and an online presence and plans to adopt a cloud-based information system to manage inventory, customer data, and sales analytics. The management team is unsure about the IT infrastructure components that they should consider and the potential implications.

You are required to:

- (a) **Explain** two (02) key IT infrastructure components relevant to **Lankan Threads**. (04 marks)
- (b) **List** three (03) benefits of adopting cloud based information system. (03 marks)
- (c) **Identify** three (03) challenges the company may face when moving to the cloud infrastructure. (03 marks)

(03 marks)
(Total 10 marks)

Question 03

Smart Books, a small enterprise offering digital accounting services, recently experienced a phishing attack that disrupted its communication with clients. The company is now reviewing its cyber security and data privacy measures to prevent such issues in future.

You are required to:

- (a) **Identify** four (04) common cyber security threats other than phishing attack that SMEs like **Smart Books** should be aware of. (04 marks)
- (b) **Explain** three (03) practical strategies that **Smart Books** can implement to mitigate cyber security risks. (06 marks)

(Total 10 marks)

Question 04

A large distribution company has invested in Business Intelligence (BI) tools to improve its logistics and supply chain decision-making. However, several managers are uncertain about how to effectively use the data insights.

You are required to:

- (a) **Explain** how Business Intelligence (BI) tools can support in improving organizational decision-making. (06 marks)
- (b) **Identify** four (04) factors that influence the successful adoption of Business Intelligence (BI) systems in large organizations. (04 marks)

(Total 10 marks)

Question 05

A public higher educational institution in Sri Lanka is planning to implement an ERP system to unify its Finance, HR, Student Records, and Examination Departments. The Vice Chancellor is concerned about the implementation challenges and potential resistance from academic and administrative staff.

You are required to:

- (a) **Define** “Enterprise Resource Planning (ERP) System”. (02 marks)
 - (b) **Explain** two (02) benefits of an ERP system for higher educational institution. (04 marks)
 - (c) (i) **Identify** two (02) common challenges in ERP implementation for higher educational institution. (02 marks)
(ii) **State** two (02) ways to overcome the above (i) identified challenges in ERP implementation of higher educational institution. (02 marks)
- (Total 10 marks)

Question 06

ParcelGo, a logistics and delivery company, is piloting an AI-powered chatbot to manage customer queries such as package tracking, delivery changes, and complaints. The team is also learning how to effectively design prompts for more accurate AI responses.

You are required to:

- (a) **State** two (02) advantages and two (02) disadvantages of using an AI powered chatbot. (04 marks)
 - (b) **Define** the concept of “prompt engineering”. (02 marks)
 - (c) **Explain** two (02) ways how prompt engineering can improve performance of chatbot. (04 marks)
- (Total 10 Marks)

End of Section B

One (01) Compulsory Question

SECTION C

(Total 25 marks)

Question 07

Sri Lanka Railways (SLR) has initiated a nationwide digital transformation program aimed at modernizing its operations, improving passenger experience, and reducing operational inefficiencies. The initiative represents a significant shift from legacy systems, many of which are still paper-based or operate in silos across departments.

Key components of the initiative include:

- Launching an integrated digital ticketing and reservation platform via online and mobile devices.
- Implementing real-time train tracking systems using IoT and GPS technologies.
- Adopting Artificial Intelligence (AI) for predictive maintenance and demand forecasting.
- Moving operational data and customer records to a secure cloud environment.
- Deploying chatbots and kiosks at stations to assist passengers.

However, the initiative faces significant challenges:

- Concerns from unions about job security due to automation.
- A growing need to safeguard passenger data and comply with the Personal Data Protection Act No. 9 of 2022.
- Ethical concerns about facial recognition and data surveillance technologies used in pilot stations.
- **SLR's** leadership has also pledged to adopt sustainable IT practices and ensure digital access for underserved regions.

You are required to:

- (a) **Explain** three (03) key drivers that justify digital transformation at **SLR**. (06 marks)
- (b) **List** four (04) key factors that influence **SLR** in making decision for selecting reliable network and internet connectivity. (04 marks)
- (c) **Evaluate** three (03) key ethical and social challenges associated with this transformation specially focusing on workforce impact, data surveillance, and digital inclusion in **SLR**. (06 marks)
- (d) **Explain** three (03) green computing strategies that **SLR** can implement to support sustainability goals during the digital transition. (06 marks)
- (e) **State** three (03) types of mobile computing devices that could be used by **SLR**. (03 Marks)

(Total 25 Marks)

End of Section C

Action Verbs Check List

Level	Action Verb	Definition	Detailed Instructions for Students
REMEMBER Recalling facts, terms, basic concepts, or answers without necessarily understanding what they mean.	Identify	Recognition of someone or something.	Find and name key parts of the topic.
	Define	Meaning of a word or concept.	Provide a clear meaning of a term or concept.
	Recognise	Awareness of something seen before.	Spot and acknowledge something from previous learning.
	State	Clear and concise expression of information.	Express key facts or concepts in a straightforward way.
	List	A series of names, numbers, or items.	Write down key points in an organized manner.
	Record	Entry of details into a system (not accounting).	Enter relevant details clearly and accurately.
UNDERSTAND Comprehending the meaning of informational materials and being able to interpret or explain it.	Construct	Formation of something by combining elements.	Bring together different parts into a meaningful whole.
	Differentiate	Recognition of differences between two or more things.	Highlight distinctions between concepts or items.
	Discuss	Consideration of different ideas and opinions about a topic.	Explore various perspectives and provide insights.
	Explain	Clarification of something in greater detail.	Provide a logical and detailed description.
	Illustrate	Use of examples, charts, or visuals to clarify a point.	Support explanations with appropriate examples or visuals.
	Interpret	Explanation of the meaning of information or actions.	Explain what something means in your own words.
	Describe	A detailed account of something.	Provide relevant details in a structured manner.
APPLY Using learned material in new and concrete situations. It requires the practical application of knowledge and skills.	Apply	Use of knowledge, skills, or rules in a situation.	Utilise relevant knowledge or techniques to achieve an outcome.
	Calculate	Determination of a value through mathematical or logical methods.	Use numerical or logical processes to reach a solution.
	Determine	Establishment of something through research or calculation.	Find out or conclude something after calculation or research.
	Demonstrate	Display of a process or method.	Show a clear example through structured steps.
	Prepare	Organisation of materials or information for use.	Arrange necessary details before engaging in a task.
	Use	Application of a concept, tool, or method for a purpose.	Implement relevant knowledge or resources appropriately.
	Present	Sharing of information effectively.	Deliver key insights clearly and professionally.

Level	Action Verb	Definition	Detailed Instructions for Students
ANALYSE 1Breaking down information into its components to understand its structure and relationships.	Analyse	Detailed examination of something to understand its components.	Break down information into key parts for better understanding.
	Compare	Examination of similarities and/or differences.	Point out the key commonalities and distinctions.
	Distinguish	Recognition of unique characteristics.	Identify what makes things different from each other.
	Examine	Inspection of something to determine its nature.	Look at something closely to understand it better.
	Outline	Summary of the main points.	Provide an organised overview of key aspects.
	Conduct	Organisation of elements for an experiment, survey, or study.	Follow structured steps to carry out a task systematically.
	Report	Structured presentation of findings.	Present analysed information in a clear and logical format.
EVALUATE Making judgments about the value or quality of ideas or materials based on criteria or standards.	Advise	Offering of suggestions or recommendations.	Provide informed guidance based on analysis.
	Evaluate	Critical assessment of value, effectiveness, or impact.	Judge the quality or relevance of something based on criteria.
	Formulate	Development of a structured approach or plan.	Create a well-defined method or strategy.
	Recommend	Suggestion of a suitable course of action.	Propose an approach backed by logical reasoning.
CREATE Combining elements in novel ways to form a coherent or functional whole; the ability to generate new ideas, products, or ways of understanding.	Create	Generation of something new.	Develop something original and purposeful.
	Assess	Estimation or evaluation of quality, ability, or nature.	Provide a reasoned judgment based on available information.
	Develop	Expansion or refinement of an idea, product, or concept.	Strengthen and improve an idea over time.
	Propose	Suggestion of a plan or concept for consideration.	Present an idea or structured recommendation.
	Synthesis	Combination of different elements to form a coherent whole.	Integrate multiple ideas or insights into a meaningful conclusion.
	Design	Creation of a structured plan for something	Formulate a detailed structure for a product or process.
	Compile	Assembly of information from various sources.	Organise collected data into a comprehensive format.



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CURRICULUM 2025

SUGGESTED ANSWERS

Level 02

**2802 - DIGITAL TRANSFORMATION &
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Objective Test Questions (OTQs)**Fifteen (15) compulsory questions****SECTION A**(Total 25 marks)

Suggested Answers to Question 01:

1.1 - 3

1.6 - 2

1.11 - True

1.2 - 3

1.7 - 3

1.12 - True

1.3 - 2

1.8 - 3

1.13 - False

1.4 - 2

1.9 - 1

1.14 - True

1.5 - 3

1.10 - 3

1.15 - True

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

Five (05) compulsory questions

(Total 50 marks)

SECTION B

Suggested Answers to Question 02:**Unit 2 – Information Technology Infrastructure.**

Learning outcomes - Identify and describe the role of each component in an organization's IT infrastructure, including cloud infrastructure.

(a) .**(1) Hardware:**

Refers to physical devices like computers, servers, and network equipment.

Even with cloud adoption, end-user devices and point-of-sale terminals remain crucial.

(2) Software:

Application and operating systems.

Includes applications for inventory management, CRM, analytics, etc.

May be cloud-hosted (SaaS) or installed locally for specific uses.

(3) **Networking / Telecommunication infrastructure:**

Provide backbone for connecting nodes within the business network as well as outside the world.

Ensures reliable connectivity to cloud services, data sync, and real-time access.

High-speed internet and secure wireless networks are essential.

(4) **Data management storage systems (Cloud-based):**

System used to store, manage and backup data.

Manages secure, scalable access to customers and transaction data.

Enables backups, analytics, and remote access.

(5) **Security infrastructure:**

Firewalls, access controls, encryption protocols to protect cloud interactions.

Critical when handling personal and financial data.

(6) **Internet platforms:**

Online platforms such as e-commerce system, cloud hosting platforms.

Facilitate online sales, cloud storage, customer interaction and secure transactions.

Networking infrastructure which is supported by hardware and software platforms.

(02 marks each, 04 marks)

(b)

- Scalability.
- Cost efficiency.
- Remote access and flexibility.
- Automatic updates and maintenance.
- Competitiveness: Able to maneuver competitors more quickly who waste efforts in acquiring maintain IT Resources.
- Enhance Data security: Provide strong security features and protect data.

(01 mark each, 03 marks)

(c) Possible Challenges:

- Data security and privacy risks.
- Internet dependency to use cloud facility.
- Integration with legacy systems.
- Need of migration complexity.
- Change management and training.

(01 mark each, 03 marks)

(Total 10 marks)

Suggested Answers to Question 03:

Unit 4 – Cybersecurity and Data Privacy.

Learning outcomes - Identify common cybersecurity threats and vulnerabilities and explain their potential impact on information systems and organizational operations.

- Identify and evaluate strategies to mitigate cybersecurity risks, including the implementation of technical, administrative, and physical controls.

(a)

- Ransomware.
- Insider threats.
- Malware infections (viruses, worms, trojans).
- Social engineering.
- Weak password exploitation/brute force attacks.
- Man-in-the-middle (MITM) attacks.

(01 mark each, 04 marks)

(b)

- **Use strong passwords and implement multi-factor authentication (MFA):** Use strong passwords is easy to remember and difficult to guess. Adds a second layer of security beyond passwords (e.g., SMS codes, authenticator apps).
- **Conduct employees' awareness training:** Educates staff on identifying phishing emails, safe browsing, and secure data handling. Due to rapid development and changes in digital technology, better to add cyber security to annual training plans matrix.
- **Install and regularly update antivirus/firewall software:** Detects and blocks malicious activities and unauthorized access attempts. Antivirus software must be up to date for better protection.

- **Perform regular data backups:** Companies should therefore safeguard their most important data by backing up to an external hard drive or cloud based storage system. Ensures recovery from ransomware or hardware failure without permanent data loss.
- **Use secure, encrypted communication channels:** Protects sensitive accounting data during online transmissions (e.g., HTTPS, VPN).
- **Access control and least privilege principle:** Ensures users only access data and systems necessary for their roles.
- **Incident response planning:** Defines steps to respond to and recover from a breach or attack.
- **Move away from using unsupported software:** use supported software on computer systems and devices. If it is necessary to use unsupported software, ensure that the risk is properly managed by having a strong firewall and up-to-date antivirus and / or anti malware software.

(02 marks each, 06 marks)

(Total 10 marks)

Suggested Answers to Question 04:

Unit 3 – Information Systems in Organizations.

Learning outcomes – Assess how organizations are using business intelligence and business analytics to capitalize on vast amounts of data.

(a) .

- **Data visualization and dashboards:** BI tools present complex data in visual formats like charts and graphs, dash boards making trends easier to understand and interpret. It will help managers to identify trends and patterns.
- **Real-time analytics:** Enables organizations to respond quickly to changes in supply chain conditions or customer demand. Since real time analytics give up-to-date insights to managers about operations, they can easily respond to changes in supply chain performance, customer demand, inventory levels.
- **Trends and forecasting analysis:** Helps predict future demand, sales trends, or resource requirements using historical data. Also BI tools use past data to optimize routes and expect supply chain disruptions.
- **KPI monitoring:** Tracks performance metrics (e.g., delivery times, order accuracy) to guide operational improvements. Organization can track KPIs in all divisions, so that it will allow managers to take necessary corrective actions by analyzing Performance details.

- **Improved decision accuracy:** Reduces guesswork by supporting decisions with data-based evidence. BI tools enhance decision accuracy based on reliable datasets. It will reduce risks of errors and enable consistent and effective decision making.
- **Identifying inefficiencies:** Analyzing trends, patterns and performance measures of the operations help organization to identify inefficiencies. Reveals process bottlenecks or underperforming segments in operations. It will enable managers to take corrective actions and run the process smoothly while increasing productivity. **(06 marks)**

(b)

- Organizational culture and user readiness.
- Data quality and governance.
- Training and user support.
- Executive sponsorship and leadership support.
- Integration with existing systems.
- Availability of organizational resources.
- Complexity.

(01 mark each, 04 marks)

(Total 10 Marks)

Suggested Answers to Question 05:

Unit 3 – Information Systems in Organizations.

Learning outcomes – Describe types of information systems available in organizations and explain necessary organizational requirements for successful implementation and use of the system.

- Explain the role of Enterprise Resource Planning (ERP) systems in integrating business processes.

- (a)** ERP (Enterprise Resource Planning) is an integrated information system that automates and unifies core business processes (e.g., Finance, HR, Procurement) within a single software platform. **(02 marks)**

(b) Benefits:

- **Process integration across departments:** Student admissions, examinations, finance, HR, and all departments can access to a shared system with synchronized data. It will enable real time access to shared information across the institute.

- **Improved decision-making:** Real-time reporting helps administrators to plan resource allocations or track academic performance metrics. **Reduced Redundancy and Manual Work:** Avoids duplicate data entry and reduces paperwork, improving efficiency.
- **Enhanced student services:** Students can register access to profile, pay fees and view results, academic records, class schedules through unified self-service portals. This self-access will enable transparency and improve communication between students and institution.
- **Regulatory compliance and audit readiness:** Centralized systems help in maintaining consistent, accessible records for audits or Ministry reporting. This simplifies the process of making reports and helps to comply by keeping accurate records.
- **Resource planning and optimization:** An Education ERP system helps colleges to plan and optimize their resources by providing real-time data on enrollment, course offerings, and staff allocation. This data enables colleges to make informed decisions about the allocation of resources, such as scheduling classes to maximize classroom utilization and staffing to meet demand.
- **A modern ERP reduces administrative overhead:** The latest ERP technology automates administrative tasks such as scheduling, grading, and student record keeping. By automating these tasks, colleges can reduce the administrative overhead associated with managing these processes, enabling staff to focus on higher-value activities such as student engagement and academic research.
- **Improves student outcomes and improves student success:** Many ERPs now incorporate artificial intelligence and automation features to streamline processes and reduce manual workloads, such as automating student registration or predicting which students are at risk of dropping out. Education ERPs help colleges to improve student outcomes by providing data-driven insights into student performance and behavior. Colleges can use this data to develop targeted interventions to improve student retention and success rates, reducing costs associated with student attrition.
- **Enhances data security and compliance:** Education ERPs help colleges to enhance data security and compliance by providing a centralized, secure platform for managing sensitive institutional data such as student records and financial information. This reduces the risk of data breaches and non-compliance, which can be costly to rectify.

(02 marks each, 04 marks)

(c) (i) & (ii) :

(1) **Challenge:** Resistance to Change by Academic and Administrative Staff may fear increased surveillance or job displacement.

Solution: Conduct training programs and involve staff early in the design and rollout process to build ownership.

(2) **Challenge:** High Initial Costs and Complexity of Implementation ERP projects are expensive and require expertise.

Solution: Adopt a phased rollout and seek vendor-supported implementation with clear cost-benefit analysis.

(3) **Challenge:** Data migration issues and moving data from legacy systems can be error-prone.

Solution: Perform detailed data audits and testing during the migration phase, with backups of historical data.

(4) **Challenge:** Poor user adoption without adequate training, users may underutilize the system.

Solution: Establish help desks and provide continuous support and feedback loops during early use.

(01 mark each for challenge, 02 marks and 02 marks each for solution, 04 marks)

(Total 10 Marks)

Suggested Answers to Question 06:

Unit 5 - Technology Trends Impacting on Information Systems.

Learning outcomes – Describe how today's organizations and individuals can gain competitive advantages by adopting emerging technologies including IoT and AI.

- Demonstrate the ability to craft and utilize effective prompts to interact with large/small language model-based (AI) chatbots for various business and technical applications, showing an understanding of prompt engineering principles and techniques.

(a) Advantages:

- 24/7 Availability.
- Operational Cost Reduction.
- Speed and Consistency.

- Offer more personalized experience.
- Deliver multilingual support.
- Boost customer engagement.
- Ensure more consistent support. **(01 mark each, 02 marks)**

Disadvantages:

- Limited contextual understanding.
- Lack of human empathy.
- Dependence on good design.
- Unable to resolve complex issues.
- It makes mistakes.
- Chatbots lacks personalization.
- Chatbots have high costs and maintenance. **(01 mark each, 02 marks)**

(b) Prompt engineering is the process of crafting inputs (prompts) in a structured and intentional way to guide AI models (such as chatbots) to generate accurate, relevant, and contextually appropriate outputs. **(02 marks)**

- (c)**
- **Improves Accuracy and Relevance:** Well-structured prompts guide, help the chatbot to understand user’s intent more clearly and return useful responses, reducing vague or generic answer and enhancing user satisfaction.
 - **Enhances Task-Specific Responses:** Allows tailoring the chatbot’s replies to fit the business context needs (e.g., using industry specific logistics terms, maintain customer service tone, response length). It ensures responses are aligned with business goal.
 - **Reduces Errors and Misinterpretation:** Specific prompts minimize confusion or irrelevant replies, especially in edge cases or multi-turn conversations.
 - **Supports Multilingual or Inclusive Access:** Prompts can be designed for local language variants or simplified for users with different literacy levels enabling accessibility (e.g., Sinhala / Tamil-speaking customers). It can effectively assist users from various back grounds. **(02 marks each, 04 marks)**

(Total 10 Marks)

End of Section B

One (01) compulsory question

(Total 25 marks)

SECTION C

Suggested Answers to Question 07:

Unit 1 – Concepts of Information Systems and Impact of Information Systems.

Unit 2 – Information Technology Infrastructure.

Unit 6 – Ethical, Social, and Legal Environment for Information Systems.

Learning outcomes – Explain the reasons behind the adoption of information systems in organizations and their impact.

- Explain the various purposes and uses of mobile computing devices in contemporary settings.
- Explain the process of obtaining network and internet connectivity for businesses and individuals and identify key decision-making factors.
- Explain the social implications of information systems on individual behavior, organizational culture, and societal norms, including the impact on employment and digital divide.
- Discuss the importance of sustainability and Green Computing practices in minimizing the environmental impact of IT operations within organizations.

(a)

- **Operational Efficiency:** In this case **SLR** presently relies paper based system and siloed function, across departments may slowdown coordination, responsiveness and accuracy. Digital tools can automate scheduling, maintenance alerts, and ticketing to improve speed and reduce delays, manual errors and operational costs.
- **Passenger Expectations:** Modern travelers expect digital ticketing, real-time updates, and self-service kiosks. This technologize customer centric platform will increase customer satisfaction, convenience and foster great use of public transport.
- **Regulatory/Policy Pressure:** Digital government strategies or transport modernization mandates encourage digitization in public services. Compliance to the policies is important to secure funding, align with national goals, and improve service delivery.
- **Cost Management and Transparency:** Digitization improves financial control, reduces fraud, and enables better reporting and enhance accountability. Automated ticketing revenue tracking, audit trails support transport reporting and financial control.

- **Data-Driven Decision-Making:** Use of analytics and AI helps optimize routes, allocate resources, and forecast demand. Digital transformation enables the collection and analysis of operational data, helping management to make informed decision on resource allocation and service planning. **(02 marks each, 06 marks)**

- (b)**
- (1) Speed.
 - (2) Bandwidth requirements
 - (3) Cost.
 - (4) Coverage & reliability.
 - (5) Vendor support.
 - (6) Terms of the contract. **(01 mark each, 04 marks)**

- (c)**
- (1) **Workforce Impact (Job Displacement):** Automation and AI systems may reduce the need of manual roles. Therefore it will fear the staff, that automation will reduce jobs. This will lead to resistance to change and affect morale.

Mitigation: Offer retraining for digital roles (e.g., system operators, chatbot monitors), involve unions in transition planning.
 - (2) **Data Surveillance/Privacy:**

Facial recognition and tracking apps may create discomfort or privacy risks. Additionally reliance on digital platform may unintentionally marginalize passengers from rural areas or low income background who may not have reliable internet access or the necessary digital skills.

Mitigation: Use only where necessary (e.g., security areas), ensure transparency, provide opt-in features.
 - (3) **Digital Divide:** Some passengers may struggle to access online services. The shift to digital services could exclude certain group of passengers especially elderly or rural underprivileged people or people with disabilities. They face barriers such as limited internet access or low digital literacy.

Mitigation: Retain physical counters and provide mobile-friendly, multilingual interfaces. **(02 marks each, 06 marks)**

(d)

- (1) **Adoption of Cloud-Based Systems:** By shifting to cloud computing, **SLR** can reduce the need for on-site physical infrastructure, minimizing energy consumption and emissions. Cloud providers mostly use optimized energy efficient data centres powered by renewable energy which helps to reduce carbon emission & energy consumption.
- (2) **Digital Ticketing and Paperless Operations:** Cuts down on paper waste and promotes environmental sustainability.
- (3) **Use of Energy-Efficient Devices / IT Infrastructure:** Deploy low-energy kiosks, LED signage, and IoT sensors with minimal power usage. Use low power servers, energy efficient hardware, sustainable data centres to reduce consumption of electricity.
- (4) **Device Recycling and Lifecycle Management:** Reuse or properly dispose of outdated systems to avoid e-waste. Establish policies for disposal and recycling of outdated IT equivalent, promote the reuse of hardware components will minimize environmental impact.

(02 marks each, 06 marks)

(e)

- Tablets.
- Smart phones.
- Ultra mobile PCS.
- Laptops.
- PDAs.

(01 mark each, 03 marks)

(Total 25 Marks)

End of Section C