



UNIVERSITY OF MORATUWA
Faculty of Information Technology

**BSc (Hons) in Information Technology and
BSc (Hons) in Information Technology & Management**

Batch 21- Semester 5 Examination
IS 3610 - MANAGEMENT INFORMATION SYSTEMS

Time Allowed: 3 hours

January 2025

INSTRUCTIONS TO CANDIDATES

1. This paper contains **30 Multiple Choice Questions** and **02 Essay Questions** on 11 Pages, including this cover page.
2. This paper consists of Section 01 (30 MCQs) and Section 02 (02 Essay questions).
3. Total time allowed to answer both Section 01 and Section 02 is **Three (03) hours**.
4. Answer **Section 01** in the **paper itself**.
5. The total marks obtainable for this examination is 100. The marks assigned for each question & sections thereof are included in square brackets.
6. This examination accounts for **70% of the module assessment**.
7. This is a **closed book** examination.
8. Answer **ALL** questions.

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SECTION 01 [45 Marks]
Time Allocation – 45 Minutes

1. Which of the following is NOT a characteristic of a digital firm?

(a) Digitally enabled business relationships	(c) Static and inflexible organizational processes
(b) Greater flexibility in time and space	(d) Digital management of corporate assets
2. What is the primary purpose of complementary assets in information systems?

(a) To directly enhance system hardware capabilities	(c) To manage transactional data in real-time
(b) To derive value from primary IT investments	(d) To substitute manual processes with automation
3. The "bullwhip effect" occurs when fluctuations in demand amplify as they move up the supply chain. Which of the following best explains why this phenomenon is particularly difficult to manage in multi-tiered supply chains?

(a) Over-reliance on manual processes increases forecasting errors	(c) Non-standardized systems prevent effective inventory tracking
(b) Limited visibility and communication lead to distorted demand signals	(d) Suppliers focus on cost-efficiency rather than responsiveness
4. Why does ERP system implementation often fail to deliver expected benefits despite significant investment?

(a) They are designed for specific industries, limiting their applicability.	(c) Their centralized nature restricts departmental autonomy.
(b) Customization and integration with legacy systems introduce complexities.	(d) They lack support for real-time analytics and decision-making.
5. A retail chain uses an analytical CRM tool to analyze purchase patterns and customer demographics. Based on the data, the marketing team launches targeted promotions, increasing customer retention by 20%. What is the primary function of the analytical CRM system described in this scenario?

(a) Automating sales force operations	(c) Facilitating real-time customer service
(b) Integrating customer touchpoints into a unified interface.	(d) Performing customer data analysis for decision-making.

6. A clothing brand manufactures seasonal apparel based on sales projections from the previous year. However, as trends change rapidly, some products remain unsold, leading to markdowns. Which supply chain model does this scenario exemplify?
- (a) Demand triggers the production process
 - (b) Product flow is regulated based on market feedback
 - (c) Inventory is managed based on anticipated demand
 - (d) Production scheduling is synchronized with real-time sales data
7. In the context of Michael Porter's competitive forces model, which scenario exemplifies "bargaining power of customers"?
- (a) Limited supplier options for a key component
 - (b) A buyer negotiating a bulk discount on software licenses
 - (c) Introducing a new product to monopolistic market
 - (d) Vendors agreeing on a unified pricing model
8. A global automaker collaborates with multiple firms, including parts suppliers, logistics providers, and IT partners, to create a seamless production-to-delivery system. This network ensures faster market response and reduced costs. What challenges in supply chain management does this "value web" address?
- (a) Synchronizing value chains across firms in an industry
 - (b) Integrating siloed business units
 - (c) Enhancing operational efficiencies in upstream logistics
 - (d) Adopting competitive pricing models for product delivery
9. A CEO uses a dashboard displaying Key Performance Indicators (KPIs) such as profit margins, inventory turnover, and sales trends. This system enables strategic decisions about entering new markets. What role does this executive support system (ESS) serve in information systems?
- (a) Supporting transaction processing
 - (b) Aiding non-routine decision-making at senior management levels
 - (c) Facilitating employee training
 - (d) Enhancing day-to-day operational activities
10. How do "first movers" differ from "fast followers" in adopting disruptive technologies?
- (a) First movers always dominate the market
 - (b) Fast followers typically incur higher costs
 - (c) Fast followers leverage resources to capitalize on innovations
 - (d) First movers often benefit from avoiding market risks
11. Which strategy can a firm adopt to achieve low-cost leadership using information systems?
- (a) Implementing mass customization
 - (c) Utilizing IT to streamline production

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| models | processes |
| (b) Developing unique marketing campaigns | (d) Leveraging data mining for customer segmentation |
12. What distinguishes a demand-driven supply chain from a traditional one?
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| (a) Focus on building large inventory buffers | (c) Reduced dependency on supply chain automation |
| (b) Information flows sequentially from one entity to the next | (d) Customer orders trigger the supply chain process |
13. A pharmaceutical company implements an ERP system to integrate procurement, production, and inventory management. However, employees resist the system due to its complexity, and the business faces delays in achieving ROI. What is the most likely reason for these challenges?
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| (a) The ERP system lacks scalability across departments. | (c) Data inconsistencies across units impacted implementation. |
| (b) The ERP system lacks support for real-time data sharing. | (d) The organization failed to align business processes with the system. |
14. Management information systems (MIS) are often criticized for their limitations in decision-making. What key shortcoming hinders their adaptability in dynamic business environments?
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| (a) Inability to process real-time data updates | (c) Lack of integration with external data sources |
| (b) Rigid reporting frameworks with minimal customization | (d) Dependence on manual data entry for critical insights |
15. A retail chain deploys a system to record all daily transactions, including sales, payments, and returns. This data is later analyzed to identify seasonal trends and adjust inventory levels across stores. The system must ensure both real-time processing and provide analytical insights for future planning. Which of the following combinations of systems best supports this scenario?
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| (a) Management Information System (MIS) and Knowledge Management System (KMS) | (c) Decision Support System (DSS) and Transaction Processing System (TPS) |
| (b) Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) | (d) Supply Chain Management (SCM) and Executive Support System (ESS) |
16. An airline company adopts a sophisticated system to track customer preferences, manage loyalty programs, and create tailored offers in real-time. This approach increases repeat customers and improves the efficiency of booking processes. Which two strategic business

objectives does this system primarily fulfill?

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| (a) Customer and supplier intimacy and improved decision-making | (c) New products and services and survival |
| (b) Operational excellence and competitive advantage | (d) Improved decision-making and operational excellence |

17. How does disintermediation in e-commerce affect the supply chain?

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| (a) It increases the number of intermediaries but decreases costs. | (c) It enhances dynamic pricing and increases switching costs for buyers. |
| (b) It removes intermediary layers, reducing final product costs for consumers. | (d) It delays the delivery of products by complicating the value chain. |

18. An online marketplace allows sellers and buyers to negotiate prices directly. It uses universal standards to facilitate seamless transactions and provides detailed product data, reviews, and pricing transparency. This model significantly reduces transaction costs.

Which of the following combination of digital marketplace features is most critical for achieving cost advantages in this scenario?

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| (a) Personalization, social technology, and ubiquity | (c) Real-time interactivity, collaboration tools, and richness |
| (b) Global reach, universal standards, and information density | (d) Information asymmetry reduction, ubiquity, and richness |

19. How does the "free/freemium" revenue model pose challenges for businesses?

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| (a) It relies heavily on high upfront development costs. | (c) It requires converting free users into paying customers, which can be difficult. |
| (b) It makes it difficult to differentiate free users from premium ones. | (d) It does not generate revenue from free users, regardless of their usage level. |

20. In a knowledge-driven organization, why is tacit knowledge often undervalued despite its critical role in competitive differentiation?

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| (a) It is not easily measurable and often lacks documentation. | (c) Its retrieval requires significant computational resources. |
| (b) It cannot be integrated with structured organizational processes. | (d) It introduces security risks due to its intangible nature. |

21. A consultancy firm struggles to retain valuable insights when senior employees leave. The firm introduces a knowledge management system that captures employees' expertise through recorded interviews, collaborative platforms, and mentoring programs. What challenge is the firm addressing, and which feature of a knowledge management system is most critical in this

case?

- (a) Knowledge storage; integration of structured and unstructured knowledge
 - (b) Knowledge dissemination; use of collaboration tools
 - (c) Knowledge application; embedding insights into workflows
 - (d) Knowledge acquisition; converting tacit knowledge into explicit formats
22. How do Knowledge Work Systems (KWS) differ from enterprise-wide knowledge management systems?
- (a) KWS are used primarily by knowledge workers for creating new knowledge.
 - (b) KWS focuses on knowledge discovery, while enterprise-wide systems focus on storage.
 - (c) Enterprise-wide systems are designed for individual use, while KWS are collaborative.
 - (d) KWS integrates intelligent techniques, while enterprise-wide systems focus on structured data.
23. What role do Communities of Practice (CoPs) play in organizational learning?
- (a) They create formalized training programs for new employees.
 - (b) They facilitate informal networks for sharing experiences and reducing learning curves.
 - (c) They replace knowledge management systems for disseminating explicit knowledge.
 - (d) They document and archive organizational knowledge systematically.
24. Why is developing taxonomy critical for enterprise content management systems?
- (a) It improves the system's ability to store semi-structured knowledge.
 - (b) It automates the creation of best practices for knowledge storage.
 - (c) It organizes and categorizes knowledge objects for easy retrieval.
 - (d) It prevents duplication of content in the system.
25. Which characteristic of high-velocity automated decision-making systems differentiates them from traditional decision-making processes?
- (a) They rely on human judgment for input at every stage.
 - (b) They use real-time data to make structured decisions without human intervention.
 - (c) They emphasize qualitative data over quantitative data.
 - (d) They focus exclusively on semi-structured decisions.
26. How do management filters negatively influence decision-making in organizations?
- (a) By reducing access to low-quality data.
 - (c) By introducing biases that reject information inconsistent with preconceptions.

- (b) By focusing on structured decisions rather than unstructured ones. (d) By preventing the organization from storing sensitive knowledge.
27. A credit card company analyzes customer spending patterns, credit history, and macroeconomic trends to predict which customers are at risk of default. The insights are used to offer customized payment plans and reduce overall risk. What is the primary focus of predictive analytics in this scenario?
- (a) Identifying anomalies in historical customer behavior (c) Enhancing real-time operational decision-making
- (b) Forecasting future customer behavior and risks (d) Creating personalized offers to retain customers
28. How do geographic information systems (GIS) contribute to decision-making?
- (a) By visualizing location-based data to support strategic decisions. (c) By integrating financial data from different locations.
- (b) By enabling predictive analytics for inventory management. (d) By automating marketing campaign management.
29. Which of the following scenario would backward chaining in an expert system be most useful?
- (a) Diagnosing multiple simultaneous errors in a system. (c) Determining optimal resource allocation for a project.
- (b) Recommending customer segmentation strategies in marketing. (d) Confirming or disproving a hypothesis based on user-provided information.
30. How do intelligent agents in knowledge management systems enhance operational efficiency?
- (a) By requiring continuous human intervention for repetitive tasks. (c) By creating new knowledge based on unstructured data.
- (b) By generating ad hoc reports for strategic decision-making. (d) By automatically performing predictable tasks such as email filtering.

END OF SECTION 01

Section 02 [55 Marks]**Time Allocation – Two (02) Hours and fifteen (15) Minutes****Question 01 [30 Marks]****Part I [12 Marks]**

Read the following case study and answer the following questions.

Kroger Co. is one of the leading supermarkets in the American retail industry is founded in 1883 by Bernard Henry Kroger. For the fiscal year 2008, the company reported sales of over US\$70 billion (Kroger corporate website) or approximately €52.5 billion. Operations are managed centrally in its Cincinnati, OH headquarters. Currently, the company operates either directly or via its subsidiaries 2,477 multi-department stores and supermarkets; 418 jewelry stores; 608 fuel centers; and 773 convenience stores. 95% of the total sales volume is accounted for Kroger's supermarket and departments store chain.

Multi-department stores are a very unique shopping center. The store occupies 150,000 s.f. and it offers more than 225 thousand food, general merchandise and apparel products in just one store. This type of store format includes, full-line supermarket, home fashion, apparel, shoes, garden, accessories, home electronics, Nutrition centers and paint and hardware. Multi-department stores have competitive advantage because it put emphasis on national brand products. Furthermore, alternatives with lower prices and competitive quality are also in display. These are basically the private label products of Kroger. For more budget-conscious customers, price-impact warehouse stores are used to attract that market. This type of store offers high-quality products. This type of format for stores provides for unique ethnic products that serve well the demographics in the region where they are located. Every store occupies an average of 56,000 s.f. of land.

Aside from selling a wide range of national product brands, The Kroger Co. also has its own manufacturing units for its own private labels. 42 manufacturing plants which are either wholly owned or employed through operating agreements are located in 17 states. These plants produce almost half of The Kroger Co.'s about eight thousand private label produce. The brand names are organized in a three-tiered system so as to attain comprehension and ease for the shoppers. The private labels are packaged and sold to other retailers under the company name: Inter-American Products. Products under Krogers' private label include dairy products, bakeries and delis, meat plants and grocery items (The Kroger Co. corporate website).

The Kroger Value line was introduced early in 2007. This product line became the successor for the FMV or For Maximum Value product line. The Kroger Value line has been diversified to wide variety of product items like frozen food, ice cream, dog and cat food, and butter. Shoppers are given the lowest price most acceptable for the products under the For Maximum Value brand. These products under the brand are necessities like canned goods, flour, bread and sugar. Problems existed when the much cheaper but lower-quality products became indistinguishable with its banner brand equivalents. As a result, in the year 2007, the FMV brand was renamed as the Kroger Value brand. Mainly all Kroger Value products carry labels in two languages, English and Spanish.

To attract customers, the company employed a promotional offer where customers who were not satisfied by the Kroger products can simply replace it with a national brand for no cost. The health and beauty products of the Kroger brand are produced by third-party manufacturers.

Although, the Kroger's Merchandising Group controls the merchandise selections of the Kroger stores, each local retail division has the power to buy and offer to the customers' local requirements. Every store encounters a unique demographic profile in its local community thus the stores are patterned to serve that need. But of course, quality and price competitiveness should not be compromised.

[Source: <https://business-essay.com/the-kroger-co-case-study/>, The Kroger Co.: Case Study, accessed on 3rd January 2025]

- (a) What are the activities conducted by Kroger Co. to have good customer satisfaction. Mention how to enhance further to improve customer intimacy.

[06 Marks]

- (b) Based on the current Kroger Co. business model, suggest the best e-commerce business model and the revenue model that can be applied to move the business towards e-commerce application. Provide proper justification for the selection.

[06 Marks]

Part II [18 Marks]

Answer following questions.

- (a) Define what is meant by the term "Agency theory" and explain how effective information systems will reduce the agency cost in an organization.

[05 Marks]

- (b) Suppose you are an analyst for a firm that imports and distributes specialty oils and vinegars, and they are considering the development of a business intelligence capability for the firm. Identify the key elements that will be required to develop the business intelligence environment.

[07 Marks]

- (c) "Knowledge increases exponentially" is a phrase with which we are all familiar. By using suitable example, explain how does this concept apply to the emergence of the digital firm?

[06 Marks]

Question 02 [25 Marks]

Use the following case study to answer the questions given below.

United Parcel Service (UPS) started out in 1907 in a closet sized basement office. Jim Casey and Claude Ryan—two teenagers from Seattle with two bicycles and one phone—promised the “best service and lowest rates.” UPS has used this formula successfully for more than 100 years to become the world’s largest ground and air package delivery company. It’s a global enterprise with over 454,000 employees, 112,000 vehicles, and the world’s ninth largest airline. Today, UPS delivers more than 5.1 billion packages and documents each day in the United States and more than 220 other countries and territories. UPS’s supplier network consists of a limited number of major suppliers for fuel, air freight, rail services and logistic solutions. The company has done significant investments in its infrastructure with the current suppliers, which incurs high switching costs if it were to change suppliers. The firm has been able to maintain leadership in small-package delivery services despite stiff competition from FedEx and U.S. Postal Service by investing heavily in advanced information technology. UPS spends more than \$1 billion each year to maintain a high level of customer service while keeping costs low and streamlining its overall operations.

It all starts with the scannable bar-coded label attached to a package, which contains detailed information about the sender, the destination, and when the package should arrive. Customers can download and print their own labels using special software provided by UPS or by accessing the UPS website. Before the package is even picked up, information from the “smart” label is transmitted to one of UPS’s computer centers in Mahwah, New Jersey, or Alpharetta, Georgia, and sent to the distribution center nearest its final destination. Dispatchers at this center download the label data and use special routing software called ORION to create the most efficient delivery route for each driver that considers traffic, weather conditions, and the location of each stop. Each UPS driver makes an average of 100 stops per day. In a network with 55,000 routes in the United States alone, shaving even one mile off each driver’s daily route translates into big savings: \$50 million per year.

The first thing a UPS driver picks up each day is a handheld computer called a Delivery Information Acquisition Device (DIAD), which can access a wireless cell phone network. As soon as the driver logs on, his or her day’s route is downloaded onto the handheld. The DIAD also automatically captures customers’ signatures along with pickup and delivery information. Package tracking information is then transmitted to UPS’s computer network for storage and processing. From there, the information can be accessed worldwide to provide proof of delivery to customers or to respond to customer queries. It usually takes less than 60 seconds from the time a driver presses “complete” on the DIAD for the new information to be available on the Web.

Through its automated package tracking system, UPS can monitor and even reroute packages throughout the delivery process. At various points along the route from sender to receiver, bar code devices scan shipping information on the package label and feed data about the progress of the package into the central computer. Customer service representatives are able to check the status of any package from desktop computers linked to the central computers and respond immediately to inquiries from customers. UPS customers can also access this information from the company’s website using their own computers or mobile phones. UPS now has mobile apps and a mobile website for smartphone users.

Anyone with a package to ship can access the UPS website to check delivery routes,

calculate shipping rates, determine time in transit, print labels, schedule a pickup, and track packages. The data collected at the UPS website are transmitted to the UPS central computer and then back to the customer after processing. UPS also provides tools that enable customers to embed UPS functions, such as tracking and cost calculations, into their own websites so that they can track shipments without visiting the UPS site.

[Source: Laudon, K. and Laudon, J., 2020, Management Information Systems: Managing the Digital Firm, Sixteenth Edition, Prentice Hall]

- (a) Describe three (03) strategic business objectives that UPS can achieve using its existing information systems.

[06 Marks]

- (b) Explain how the existing information systems support the different levels of management at UPS, providing that one decision can be made by a manager.

[06 Marks]

- (c) Explain how the existing information systems at UPS impact the five driving forces in Michael Porter's Competitive Forces Model.

[10 Marks]

- (d) Suggest an additional information system that you identified as necessary for UPS, along with the appropriate reasons/s.

[03 Marks]

END OF SECTION 02