University of Ruhuna- Faculty of Technology

Bachelor of Information and Communication Technology Honours Degree
Level 2 (Semester I) Examination, June/July 2026
Academic year 2024/2025

Course Unit: ICT2152 – E-Commerce Implementation, Management & Security (Written)

Duration: 02 hours

This question paper consists of eight (08) pages, including the instruction page.

IMPORTANT INSTRUCTIONS:

1. The medium of this examination is English.
2. This is a closed-book examination.
3. The paper consists of four (04) questions, each carrying equal marks.
4. You are required to answer **all four (04)** questions.

1)

a) Differentiate "E-Commerce" and "E- Business" using three (03) key parameters.

[15 Marks]

b) The primary objective of E-Commerce is to increase the speed and efficiency of business transactions and processes. Justify this statement using two (02) valid points.

[20 Marks]

c) Identify the following business scenarios from leading companies worldwide and determine the corresponding category of e-commerce for each case.

[15 Marks]

i) Individual consumers buy and sell products directly to other consumers. For example, a person can sell a used laptop or smartphone to another person through eBay's online marketplace.

ii) Alibaba connects manufacturers, wholesalers, and suppliers with other businesses worldwide. For example, a Sri Lankan retailer may purchase products in bulk from a Chinese manufacturer through Alibaba for resale.

iii) Amazon sells products such as electronics, books, clothing, and household items directly to individual consumers through its online platform. Customers browse products, place orders, make payments online, and receive products at their homes.

iv) Businesses supply goods and services to government agencies through electronic procurement systems. For example, a company may submit an online bid to provide office equipment, software, or construction services to a government department.

v) Organizations use SAP ERP to automate internal business processes such as inventory management, procurement, payroll, finance, and human resource management. Transactions occur electronically within the organization and with suppliers.

d) Read the following case study on "Heritage King Coconut Exporters" and answer the questions that follow:

Case Study:

Heritage King Coconut Exporters is a well-established king coconut cultivation, processing, and export company based in Kurunegala, Sri Lanka, specializing in premium-quality king coconut products such as fresh king coconuts, king coconut water, bottled king coconut beverages and dehydrated king coconut products. The company was founded in 1998 and has built a strong reputation for supplying natural, healthy, and sustainably sourced coconut products. It has received several national agricultural excellence awards and international food safety certifications.

Heritage King Coconut Exporters currently holds 24% of Sri Lanka's king coconut export market and exports its products to destinations such as the United Kingdom, Germany, the UAE, Japan, Australia, and the USA. The company collaborates with over 750 small-scale coconut growers across the Northwestern, Western, and Southern Provinces. Its primary collection, processing, and packaging branches are located in Kurunegala and Puttalam.

In recent years, competition from countries such as Thailand, Vietnam, and the Philippines has increased significantly in the global natural beverage market. These countries offer a wide variety of coconut-based products at competitive prices, creating challenges for Sri Lankan exporters. Furthermore, global consumer demand for organic, functional, and value-added coconut products such as flavored coconut water, coconut-based sports drinks, health supplements, and ready-to-drink beverages is growing rapidly. However, Ceylon King Coconut Exports has not yet fully diversified into these emerging product categories. Diseases spreading among coconut trees are another major challenge for Heritage King Coconut Exporters. Yearly, a sufficient number of coconut trees are permanently destroyed due to these uncontrolled diseases. The king coconut harvest reduces yearly due to these severe Diseases.

The company currently operates a basic informational website that shows its products and company profile but does not support online ordering, customer account management, or international payment facilities. Many overseas distributors and retail buyers have requested advanced product traceability systems, sustainability certifications, and compliance with standards such as EU Organic, USDA Organic, and Fair-Trade Certification. However, the company has not yet achieved full compliance with these requirements.

Recently, Ceylon King Coconut Exports launched a strategic project to establish a modern king coconut beverage processing plant and entered discussions with a leading international supermarket chain to supply private-label coconut water products. The Managing Director, Mr. Kasun Wijesinghe, plans to expand into premium market segments by introducing organic king coconut water, health-focused beverage blends, and eco-friendly packaging solutions. At the same time, he remains concerned about the impact of climate change, prolonged droughts affecting coconut yields, fluctuations in international shipping costs, and increasing quality assurance requirements in export markets.

i) The top management of Heritage King Coconut Exporters intends to undertake a strategic project to establish a modern king coconut beverage processing plant. Before initiating the project, a SWOT analysis is required. Conduct a SWOT analysis for Heritage King Coconut Exporters by identifying at least three (03) factors under each of the four categories.

[30 Marks]

ii) A website often serves as the initial point of interaction between customers and a company; therefore, creating a strong and positive first impression is essential. Discuss the key principles and best practices involved in designing an effective website that attracts and engages customers.

[20 Marks]

2) Read the following case study on ***FreshWash*** and answer the questions that follow:

FreshWash Online Laundry Services is a rapidly growing laundry and dry-cleaning service provider operating in Sri Lanka for over 12 years. The company is known for providing affordable, reliable, and high-quality laundry solutions for households, university students, working professionals, hotels, and corporate clients. Through its commitment to customer satisfaction and convenient pickup-and-delivery services, ***FreshWash*** has built a strong reputation in the local market.

However, in recent years, the company has faced increasing competition from technology-driven laundry startups and on-demand service platforms that offer mobile applications, real-time order tracking, cashless payments, and same-day delivery services. Customer

expectations have also evolved significantly, with many consumers preferring fully digital service experiences.

The economic downturn and rising utility costs have increased operational expenses, while fluctuations in fuel prices have affected transportation and delivery costs. At the same time, competitors are utilizing AI-powered customer service chatbots, automated scheduling systems, and predictive analytics to improve customer experience and operational efficiency.

To address these challenges, ***FreshWash*** is exploring new business strategies. The company plans to launch a comprehensive digital laundry platform through a new online service division, enabling customers to schedule pickups, track laundry status in real time, make online payments, and receive AI-based recommendations for garment care and cleaning packages. The platform will also provide subscription-based laundry plans for busy professionals and students.

FreshWash has recently signed a 3-year strategic partnership with a leading textile care chemical supplier to ensure a stable supply of eco-friendly detergents and fabric treatment products. In addition, the company is considering partnerships with apartment complexes, universities, hotels, and corporate offices to provide customized laundry solutions and promotional service packages.

The company currently operates five laundry processing centers located in Colombo, Kandy, Gampaha, Kurunegala, and Matara, with its head office situated in Colombo. While FreshWash uses a basic order management and billing system to handle daily operations, it lacks an integrated digital platform that can effectively manage customer relationships, marketing campaigns, delivery logistics, service scheduling, inventory management, and business analytics.

Recognizing the growing importance of digital transformation, ***FreshWash*** is actively seeking technology-driven business models and innovative online services to strengthen its competitive position, improve customer satisfaction, and expand its market share in Sri Lanka's rapidly evolving service industry.

a) List the four (04) P' s of marketing applied in web-based marketing strategies.

[10 Marks]

b) Identify three (03) demographic factors relevant to the ***FreshWash*** business scenario.

[15 Marks]

c) Briefly explain how the ***FreshWash*** Online Laundry service can use market segmentation to improve the effectiveness of its digital marketing activities

[15 Marks]

d) Explain how ***FreshWash*** can apply behavioral segmentation within its online business operations.

[15 Marks]

e) Promotions are a key component of digital marketing. List two (02) types of online promotional methods used in web marketing.

[10 Marks]

f) Explain how ***FreshWash*** can apply the marketing funnel model, including customer acquisition, conversion, and retention stages.

[15 Marks]

g) Explain how branding can help ***FreshWash*** differentiate itself from its competitors.

[20 Marks]

3) Read the following case study about ***SecureTrust*** Finance PLC, and answer the following questions:

SecureTrust Finance PLC is one of Sri Lanka's leading finance companies, providing personal loans, leasing services, fixed deposits, and digital banking services. To improve customer convenience and support the growing e-commerce market, the company launched an online payment gateway called **SecurePay**, allowing customers to make payments using credit cards, debit cards, electronic wallets, and online bank transfers.

The SecurePay platform was integrated with several popular e-commerce websites, including online supermarkets, fashion retailers, electronic stores, and utility payment services. Thousands of customers use the platform daily to conduct online transactions.

In 2026, cybercriminals launched a sophisticated attack targeting SecureTrust Finance and its customers. The attackers first sent phishing emails disguised as official notifications

from the company, requesting customers to "verify their accounts" through a fake SecurePay website. Many customers unknowingly entered their usernames, passwords, and payment card details.

At the same time, the attackers distributed a banking Trojan through malicious email attachments. Once installed on customers' computers, the Trojan secretly captured login credentials and payment card information whenever users accessed online banking or e-commerce websites.

The attackers then used the stolen information to perform unauthorized transactions through several e-commerce merchants connected to SecurePay. More than 5,000 customer accounts were affected, resulting in financial losses exceeding LKR 150 million. After this huge loss, cyber security specialists analyzed and investigated the incident and revealed several security weaknesses.

a) Define the term "Information Security"

[10 Marks]

b) List three (03) security weaknesses identified by the security specialist related to the above incident.

[15 Marks]

c) Briefly explain the role of authentication and authorization in securing e-commerce transactions.

[15 Marks]

d) Explain how a banking Trojan can threaten online payment systems.

[20 Marks]

e) Briefly explain three security measures that SecureTrust Finance could implement to prevent future attacks.

[15 Marks]

f) Evaluate the importance of a Business Continuity Plan (BCP) in maintaining e-commerce services during cyberattacks.

[25 Marks]

4)

a)

i) Briefly explain the concept of a supply chain?

[10 Marks]

ii) Differentiate "direct materials" and "indirect materials".

[10 Marks]

iii) "Replenishment Purchasing is an essential part of supply chain management". Do you agree with this statement? Justify your answer.

[20 Marks]

iv) Explain three (03) benefits of using internet-related technologies in supply chain management.

[15 Marks]

b) "The Internet is platform neutral." Discuss this statement.

[10 Marks]

c) Differentiate between dynamic web pages and static web pages.

[15 Marks]

d) Select any **two (02)** topics from the following and write short notes on each.

[20 Marks]

- Importance of a Business Plan
- Customer Relationship Management (CRM)
- Three-tier Client Server Architecture

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