



Association of Accounting Technicians of Sri Lanka

Level II Examination - July 2021

Suggested Answers

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

Association of Accounting Technicians of Sri Lanka
No.540, Ven. Muruththettuve Ananda Nahimi Mawatha,
Narahenpita, Colombo 05.
Tel : 011-2-559 669

A publication of the Education and Training Division

Level II Examination - July 2021

(202) INFORMATION SYSTEMS IN DIGITAL ENVIRONMENT

SUGGESTED ANSWERS

Fifteen (15) Compulsory Questions
(Total 25 Marks)

SECTION - A

Suggested Answers to Question One:

- | | |
|---------|----------|
| 1.1 (3) | 1.6 (2) |
| 1.2 (4) | 1.7 (3) |
| 1.3 (3) | 1.8 (1) |
| 1.4 (4) | 1.9 (2) |
| 1.5 (2) | 1.10 (3) |



(02 marks each, 20 marks)

- 1.11 True
1.12 False
1.13 True
1.14 False
1.15 True

(01 mark each, 05 marks)

(Total 25 marks)

End of Section A

Suggested Answer for Question Two:

[a]

Chapter 1 – Concepts of Information Systems and Impact of Information Systems

Information Technology and Information Systems can be used in an organization to,

1. Communication between employees, suppliers and customers

IT, provides the effective ways to communicate to an organization to its success with inside and outside. For many companies, email is the principal means of communication between employees, suppliers and customers. Email was one of the early drivers of the Internet, providing a simple and inexpensive means to communicate. Over the years, a number of other communications tools have also evolved, allowing staff to communicate using live chat systems, online meeting tools and video-conferencing systems. Voice over internet protocol (VoIP) telephones and smart-phones offer even more high-tech ways for employees to communicate.

2. Inventory Management Systems

When it comes to managing inventory, organizations need to maintain enough stock to meet demand without investing in more than they require. Inventory management systems track the quantity of each item a company maintains, triggering an order of additional stock when the quantities fall below a pre-determined amount. These systems are best used when the inventory management system is connected to the point-of-sale (POS) system. The POS system ensures that each time an item is sold, one of that item is removed from the inventory count, creating a closed information loop between all departments.

3. Data Management Systems

The days of large file rooms, rows of filing cabinets and the mailing of documents is fading fast. Today, most companies store digital versions of documents on servers and storage devices. These documents become instantly available to everyone in the company regardless of their geographical location. Companies are able to store and maintain a tremendous amount of historical data economically, and employees benefit from immediate access to the documents they need.

4. Management Information Systems (MIS)

Storing data is only a benefit if that data can be used effectively. Progressive companies use that data as part of their strategic planning process as well as the tactical execution of that strategy.

Management Information Systems (MIS) enable companies to track sales data, expenses and productivity levels. The information can be used to track profitability over time, maximize Return on Investment (ROI) and identify areas of improvement.

Managers can track sales on a daily basis, allowing them to immediately react to lower-than expected numbers by boosting employee productivity or reducing the cost of an item.

5. Customer Relationship Management

Companies are using IT to improve the way they design and manage customer relationships. Customer Relationship Management (CRM) systems capture every interaction a company has with a customer, so that, a more enriching experience is possible. If a customer calls a call center with an issue, the customer support representative will be able to see what the customer has purchased, view shipping information, call up the training manual for that item and effectively respond to the issue.

The entire interaction is stored in the CRM system, ready to be recalled if the customer calls again. The customer has a better, more focused experience and the company benefits from improved productivity.

6. Make use of productivity apps

Business can make use of productivity application availed by technology tools that can increase business productivity at a lessor cost.

7. Benefits from web based payments

Web based payment systems help business through sending and receiving payments online. Due to many payments options and their flexibility web based payment has enabled many businesses fetch new customer segments.

8. Better marketing campaigns

Digital marketing tends to yield better vy far results than traditional advertising methods. They have the potential of undertaking marketing campaigns that target specific ordinance.

9. Minimize errors

10. Increase accuracy

11. Increase data storage efficiency

12. Improve security

13. Increase overall performance

(05 marks)

[b]

Chapter 1 - Concepts of Information Systems and Impact of Information Systems

No, cannot agree with the statement.

Information system is an integrated set of components for collecting, storing, and processing data and for providing information and digital products. Some of the software involved in the information system may be available to download free, but not the entire information system can be downloaded at free, while some open source software can function as Information Systems many are developed at cost for specific organizational requirements. Furthermore, Information systems are not popular due to this reason, but rather for the value and competitive advantage they provide for organizations.

(02 marks)

[c]

Chapter 1 - Concepts of Information Systems and Impact of Information Systems

- 1 **Examination Registration Process** – This can be done by using web forms and collected data can be stored in a database efficiently. And also this process can be completed using a website.
- 2 **Collecting Payments** – Payments can be collected electronically by using credit / debit cards or by using a QR payment system through a payment gateway.
- 3 **Issuing of Admissions** – Admissions can be delivered to students by using communication software such as email and student alert can be sent via SMS or instant messaging service or can use the website to download the admissions through student portal.
- 4 **Issuing of Results** – Result sheets can be prepared by using word-processing software and email / SMS / instant messaging service can be used to inform students immediately and later, a printed result sheets can be sent via postal system.
- 5 **Exam Related Inquiries** – This can be facilitated by Whatsapp, Viber, etc.

(03 marks)

(Total 10 marks)

Suggested Answer for Question Three:

Chapter 2 – Information Technology Infrastructure

[a]

- (1) Microsoft Windows 10
- (2) Apple OS
- (3) Linux Distribution (ex- Ubuntu Linux)

(02 marks)

[b] Advantages of saving in local hard drive,

- (1) If files are saved in the hard drive, it can be retrieved at any time even without internet connection.
- (2) The risk of being copied to a third party is minimal, as the hard drive belongs to the person who owned the device.
- (3) Better control over data, as it is saved in local and own device.
- (4) Better security.
- (5) Better privacy.
- (6) Can be accessed immediately.

Disadvantages of saving in local hard drive,

- (1) If the assignments are stored only on the laptop computer, there is a risk of data loss in case the hard drive fails. (Device dependent)
- (2) Since, the hard drive accommodates for a limited storage, there is a possibility of facing storage problems when the number of assignments increase.
- (3) Less mobility.
- (4) Hardware or software failures can result limited or no access to saved data.
- (5) Difficult to share data.
- (6) Access to assignments is limited to the saved hard drive or google drive.

(04 marks)

(c)

Assuming that the student has a data connection on the 4G smart phone, and the student is in a data coverage area, it would be possible to access the internet using the smart phone.

Student can share the connection with the laptop by enabling Wifi, Bluetooth, Hotspot or USB tethering facility (the linking of a computer or other device to a smartphone in order to connect to the internet) available in the phone.

(04 marks)

(Total 10 marks)

Suggested Answer for Question Four:

Chapter 3 – Information Systems in Organizations

(1) Human Resource Information System (HRIS)

A Human Resource Information System (HRIS) is software that provides a centralized repository of employee master data that needs for completing core human resource activities. An HRIS stores, processes and manages employee related data and typically provides facilities to perform HR functions such as recruiting, applicant tracking, personal details, time and attendance management, salaries, performance appraisals etc.

(2) Logistic Management Information System (LMIS) / Inventory Control System

A Logistics Management Information System (LMIS) is a system can be used to aggregate, analyze, validate and display data from all levels of the logistics system that can be used to make logistics decisions and manage the supply chain with the company. LMIS data elements include stock on hand, losses and adjustments, consumption, demand, issues, shipment status, route planning, and information about the cost of supplies managed in the system.

(3) Financial Accounting System

Financial accounting system can be used support activities involved in process of recording, summarizing, and reporting the numerous transactions resulting from business operations over a period of time. These transactions are summarized in the preparation of financial statements; including the statement of financial position, income statement and statement of cash flow those record the company's financial position at a specific date and operating performance over a specified period. This can be used for business analytics and strategic decisions of the entity.

(4) Supply Chain Management System (SCMS)

Supply Chain Management is the handling of the entire production flow of a goods or services, starting from the raw materials / components all the way to delivering the final product to the consumer. With the help of SCMS, the company can create a network of suppliers that move the product along from the suppliers of raw materials and buyers.

(5) Manufacturing and Production Information System

Manufacturing and production systems deal with the planning, development, and maintenance of garment production facilities. It helps to set production goals, the acquisition, storage, and availability of production materials and the scheduling of

equipment, facilities, materials, and labor or human resource required to fashion finished products.

(6) Management Information Systems

To provide middle level managers the view to plan the organization according to policies and directives of top management. Periodic reports on garment exports, expenditure on machinery, raw materials, etc.

(7) Decision Support Systems

To assist in management decision making tasks such as optimum number of employees for a shift, layouts for cutting machines.

(8) Business Expert Systems

To detect anomalies in transactions, attendance marking of employees using facial recognition etc.

(9) Executive Information Systems

To support top management on decisions such as expansion of services/ factories and return on strategic investments.

(10) Enterprise Resource Planning (ERP) Systems

To combine systems that run across verticals and horizontal in the organization with modules for different functions.

(11) Office Automation Systems

To automate day to day tasks in the front office such as approvals, buying office orders, etc.

(Total 10 marks)

Suggested Answer for Question Five:

Chapter 4 – Ethical, Social and Legal Environment for Information Systems

(a)

- (1) Facebook / Meta
- (2) Instagram
- (3) Twitter
- (4) QZone
- (5) Tumblr
- (6) LinkedIn
- (7) Youtube

(04 marks)

(b)

- (1) Use strong passwords which make it harder for brute force hacking
- (2) Use two factor authentications (for example SMS based verification) such that simple password-based login is not sufficient to log in to your account.
- (3) Do not reveal passwords and communicate authentication details to anyone
- (4) Change the passwords regularly
- (5) Beware of phishing scams
- (6) Enable multilevel security, if available
- (7) Do not use the social network account on the public computers

(04 marks)

(c)

- (1) Users can get addicted to social media / networking applications
- (2) Users may suffer negative experiences such as inadequacy about life or appearance
- (3) Cyber bullying
- (4) Hacking
- (5) Unhealthy sleep patterns may result health issues
- (6) Spreading of untrue/ false information can effect societies, cultures
- (7) Social media / networking trolls
- (8) Loss of reputation

(02 marks)

(Total 10 marks)

Suggested Answer for Question Six:

Chapter 5 – Technology Trends Impacting on Information Systems

[a]

- [i] Massive Open Online Course (MOOCs) is a new way of e-learning. This is a free web-based distance learning program that is designed for large number of geographically dispersed students.

Characteristics of MOOCs:

- Interested students are allowed to download the teaching or learning material on their PC/ laptop computer.
- MOOCs provide online and distance learning course which requires no limit on attendance, open enrollment (no requirement for entry qualification).
- No fee is charged as course participation fee.
- No pressure to complete the course and teachers are not directly involved in supervision and as a result the success rate is low.
- Courses are mostly short term courses.
- These courses may offer a certification; enhance employment opportunities or further studies. Typically, MOOCs are used for higher education and career advancement.
- Each MOOC will include a course provider and a course platform.
- A course provider is often a university or Institution, which supplies the course materials and instructors. The platform provides the technological infrastructure for course modules, user access and other learning resources.

(04 marks)

[ii] Educational sites providing “MOOC” service

- (1) Coursera
- (2) Edx
- (3) Canvas
- (4) Udacity

(02 marks)

[b] Impact of “FinTech” on organizations

1 Easier Payment Process / Mobile Payments

FinTech apps facilitate businesses with easier payment process. The FinTech solutions prevent the consumers and business owners from going through the cumbersome, time-consuming process of cash and credit/debit card based payment. Nowadays most of the organizations have introduced mobile payment applications for their operations. The transactions can be easily made online using banking apps, digital wallets and Crypto currencies.

2 Crowd Funding Platforms

Crowd funding platforms like kickstarter, GofundMe and Patreon are the result of developments in FinTech.

3 Robo Advisors

Robo advisors are a class of financial advisor that provide financial advice or investment management online with moderate to minimal human intervention. They provide digital financial advice based on mathematical rules or algorithms. This is also a FinTech innovation.

4 Insuretech

Insuretech is also an inspired version of FinTech which is used in insurance industry.

5 Low Cost

By making the financial services available on many mobile devices that is used by people i.e. smartphones, tablets, FinTech has improved the PoS (Point of Sales) system and cut down the expenses of the businesses, along with gaining sophisticated analytics data to better engage with customers.

6 FinTech can be done on social media

Can use with social media and mobile communication with special applications. Integration of the business with social networks allows obtaining information about customer preferences for the purpose of using it when proposing new products, establishing trusting relationships with each consumer.

(04 marks)

(Total 10 marks)

End of Section B

Suggested Answer for Question Seven:

[a]

Chapter 4 - Ethical, Social and Legal Environment for Information Systems

Lanka Health can implement a computer based system to perform its functions electronically. Collection of patient details, payments from patients, patient-doctor/hospital communication, and storage of collected data from all sources can be stored electronically and all such electronic functions help to minimize paper usage throughout the organization. Also can setup PDF based reports to link to patients via smartphone messages/ email etc. This will enable only required documents to be printed. When necessary with devices such as tablets, the documents can be looked up by doctors directly via the cloud.

(03 marks)

[b]

Chapter 3 - Information Systems in Organizations
Chapter 5 - Technology Trends Impacting on Information Systems

Lanka Health can setup a cloud based Electronic Health Record Management System (EHRMS), which is a digital version of a patient-doctor record keeping system. EHRMS are real-time, patient-centered records that make information available instantly and securely to doctors or to any authorized users. By maintaining an EHRMS, doctors can retrieve medical and treatment histories of patients, diagnoses, medications, treatment plans, immunization dates, allergies, radiology images, and laboratory and test results, allow access to evidence-based tools that providers can use to make decisions about a patient's care, automate and streamline workflow.

To implement such EHRMS the company needs to develop,

- A cloud-internet based customized software solution that contains all required functions
- A Wide Area Network (WAN) network solution (wired/wireless) that connects all medical centers around the country
- A unified database, which facilitates centralized access to all collected data across the platform while ensuring the privacy of patients.

(03 marks)

[c]

Chapter 2 - Information Technology Infrastructure

- (1) **Hardware Platform** – Personal computers, server computers, network equipment maintain at hospitals and data collection centers to provide required computer facilities.
- (2) **Application Software / Operating System Software Platform** – Suitable operating system to run on computers with necessary application software to improve office automation at medical centers and hospitals.
- (3) **Custom Built Software / Bespoke Application** – Custom built software solution with user friendly interfaces to enter / retrieve patient, payments, doctor and staff related information.
- (4) **WAN Network** – A higher bandwidth wired or wireless (3G/4G) network that connects all centers with hospitals to setup real-time exchange of information and communication. This need to connect devices within hospital premises as well as remotely connect the labs and sample collection centers.
- (5) **Database Management System** – Network connected centralized database, which connected to Electronic Health Record Management System (EHRMS), so that collected data can be maintained centrally.
- (6) **Website / Mobile app** – Website / app can be maintained, so that doctors / patients can remotely access through their home computer or smart phone when needed.
- (7) **Enterprise Resource Planning (ERP) Software** - To connect different functional information systems of the organization, electronic health records.
- (8) Cloud infrastructure to setup the dashboards.
- (9) **Internet Platforms** – This is another part of companies' general networking infrastructure which is supported by necessary hardware and software.
- 10) **Consulting and System Integration System** – Software integration is processes which insure the new infrastructure works smoothly with the existing system.

(08 marks)

(d)

Chapter 3 - Information Systems in Organizations

(1) Booking Features

This feature allows booking doctors' appointments, tests or video consultations and book an ambulance. Booking features should allow patients to quickly see what appointments their doctor has available or tests. Doctors and test centers should be able to view their calendars, quickly see their upcoming appointments and change their availability as necessary.

(2) Real-Time Updates

Real-time updates are important in healthcare. Data needs to be continuously updated as patients' health changes and doctors need to be able to view real-time information about their patients to provide the best care. As an example allow patients to get their diagnostic reports (blood, urine etc.) directly to the mobile app.

(3) Payment Integration

A healthcare app payment integration provide facilities to pay for medical services such as paid consultation, pay for their appointments through credit card payments, QR payments or payment gateways makes it easy for users / healthcare professionals. And also can provide electronic bills related to in-patient ward stays.

(4) Progress Tracking

Being able to track patient progress will be an essential feature for many healthcare apps. For example, doctors may want to be able to review the heart rate, blood pressure, or diet of their patient so they keep an eye on patient health and vitals. Allowing patients to monitor their own progress and see how they are improving will provide them with a great user experience and increase usage of app.

(5) Notifications /Alerts

Notifications are an essential feature. Reminders for doctors' visit or when to take medication will be very helpful to users / patients. This can be used to provide alerts, special promotional health packages.

(6) Patient Privacy Features

Privacy should be a key consideration for any app that collects user data, but this is especially important when it comes to healthcare. Privacy is one of the must have healthcare mobile apps features for patients.

(7) Messaging

Messaging provide a quick care to patients. Patients and doctors being able to simply interact with one another will help not only build trust between the patient and doctor when the patient is outside of a healthcare facility, but will also build trust between the user and you, the app provider.

(8) Cross-Device Accessibility

A developed applications / apps should be compatible with commonly available different devices and operating systems such as iOS and Android.

(9) E-Prescriptions

E-prescription technology provides convenience and saves both doctor and patient time. An e-prescription feature allows doctors to generate and send prescriptions, along with all of the relevant details that accompany them.

Further, an additional feature can be include to check local pharmacies to see if a patient's prescribed medicine is available.

(10) Video Conferencing

Video appointments have replaced in-person consultations. This is an attractive alternative for both patients and doctors. With this feature, Patients no longer need to spend hours in waiting rooms and commuting to their doctor's office or healthcare provider. Telemedicine also provides an additional level of privacy, which is difficult to achieve in a crowded hospital setting.

(08 marks)

(e)

Chapter 2 - Information Technology Infrastructure

- (1) Speed and scalability
- (2) Size of data to be stored
- (3) Structure of data
- (4) Accessibility of data
- (5) Safety and security features available
- (6) Data modeling
- (7) Scope for multiple databases
- (8) Cost and suitability

(03 marks)

(Total 25 marks)

End of Section C

Notice:

These answers compiled and issued by the Education and Training Division of AAT Sri Lanka constitute part and parcel of study material for AAT students.

These should be understood as Suggested Answers to question set at AAT Examinations and should not be construed as the “Only” answers, or, for that matter even as “Model Answers”. The fundamental objective of this publication is to add completeness to its series of study texts, designs especially for the benefit of those students who are engaged in self-studies. These are intended to assist them with the exploration of the relevant subject matter and further enhance their understanding as well as stay relevant in the art of answering questions at examination level.



© 2021 by the Association of Accounting Technicians of Sri Lanka (AAT Sri Lanka). All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the Association of Accounting Technicians of Sri Lanka (AAT Sri Lanka)