ASSOCIATION OF ACCOUNTING TECHNICIANS

OF SRI LANKA

CURRICULUM 2020

PILOT PAPER

Level II

A publication of the Education and Training Division

Association of Accounting Technicians of Sri Lanka
202 - Information Systems in Digital Environment (ISD)
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.

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 Consider the following four statements (a-d)

(a) Unlock the phone using finger print recognition.

(b) Identify the location of the phone using GPS technology.

(c) Identify the speed and direction in which the person holding the phone is moving.

(d) Unlock the phone using facial recognition.

Which of the following can be performed using smart phones in use today?

(1) **(a), (b)** and **(c)** only.   (2) **(a)** and **(b)** only.

(3) **(b)** only.   (4) All of the above.

1.2 Bit coin is an example for which of the following technological innovations?

(1) Crypto Currency.   (2) Payment Gateway.

(3) Secure Data Transfer Protocol.   (4) 3D Printing Technology.

1.3 edX and Cousera are examples for which of the following internet-based platform / service?

(1) Internet Security Provider.   (2) Massively Open Online Course Provider.

(3) Internet of Things (IOT) Device.   (4) Data Visualisation Service.

1.4 Which one of the following is an example for a provider considered as Disruptive in the Hospitality and Travel service sector?

(1) Uber.   (2) AirBNB.   (3) Amazon.   (4) Facebook.

1.5 Which one of the following is an example for an ERP solution currently being used by large organisations across the world?

(1)   SAP.   (2)   Microsoft Office 365.

(3)   Microsoft Azure.   (4)   Amazon Web Services.

1.6 Which one of the following is a secure messaging platform for messages and calls on mobile devices?

(1)   TicTok.   (2)   Twitter.   (3)   Telegram.   (4)   Instagram.

1.7 "This concept is known as a practice of funding a project or venture by raising small amounts of money from a large number of people, typically via the Internet." Which one of the following best matches this definition?

(1)   Block chain.   (2)   Crowd funding.

(3)   Paypal.   (4)   Micropayments

1.8 "This legal regulation enacted in Sri Lanka is aimed at minimizing criminal activity using computers and information systems. Which one of the following acts best matches this explanation?

(1)   Payment and Settlement Systems Act No 28 of 2005.

(2)   Electronic Transactions Act No 19 of 2006.

(3)   Payment Devices Fraud Act No 30 of 2006.

(4)   Computer Crimes Act No 24 if 2007.

1.9 Which one of the following indicates an option available on a web browser to enable browsing with privacy enabled?

(1)   Incognito Mode.   (2)   Cast Screen.

(3)   Browser Extensions.   (4)   Browser Settings.

1.10   Which of the following do **not** indicate characteristics of the 4th Industrial Revolution?

   (1)   Increased Automation and Optimization.

   (2)   Constant Monitoring.

   (3)   The Rise of Robots.

   (4)   Database Systems.   **(02 marks each, 20 marks)**

State whether each of the following sentences in Question 1.11 to 1.15 is True or False

1.11   If your mobile phone is connected to a mobile service provider, the provider can find out the approximate area where a cell phone is located without using any ability of the mobile phone itself.

1.12   Ransomware is a type of software used by the Police Forces of different countries.

1.13   VOIP is a service available on the internet for voice calls between different parties.

1.14   ROI is a measurement that can be used to evaluate the investment of IT in an organisation.

1.15   In a cloud based personal calendar management solution, it is possible to share calendars between employees.

(01 Mark each 05 marks)

(Total 25 marks)

End of Section A

Question 02

Over the past few decades, more and more organisations have invested heavily in Information Technology (IT). As a result, good or relevant information is more important to organisations, and the Information Systems (IS) they use. Some refer to Data as the new oil.

You are required to:

(a) **List** four (04) characteristics of quality Data. **(04 Marks)**

(b) **Differentiate** between the terms Information Technology and Information Systems. **(02 Marks)**

(c) **Explain** the reasons behind the widespread adoption of Information Systems in organisations and the impact of Information Systems. **(04 Marks)**

(Total 10 Marks)

Question 03

DressMe is a garment export company. Their factory is located in Anuradhapura and the head office is in Colombo. The Company has employed over 500 staff including 15 executives. The company is planning to invest in IT for modernizing their processes.

You are required to:

(a) **List** three (03) types of Internet Connection Technologies that can be used to connect their factory and the head office to the internet and identify the one with the highest bandwidth out of them.

(04 Marks)

(b) **List** three (03) examples for applications how Cloud Computing can be beneficial for the given organisation. **(03 Marks)**

(c) A Director of the Company has commented the company needs to setup a Data center. State whether you agree with this statement? **Explain** the reasons.

State any assumptions. **(03 Marks)**

(Total 10 Marks)

Question 04

When analysing the IT and IT enabled companies in Sri Lanka, the BPO (Business Process Outsourcing) service sector has been a major source of revenue for the country. The Business Process Outsourcing (BPO) service sector in Sri Lanka has seen a rapid growth within the last decade

You are required to:

(a) **Explain** what is meant by Business Process Outsourcing and **List** three (03) examples for BPO services where Sri Lankan Companies are engaged in offering. **(05 marks)**

(b) Enterprise Resource Planning (ERP) Software are being increasingly used by Sri Lankan Businesses.

Explain what is meant by ERP Software, and **list** three (03) examples for ERP Software currently in use. **(05 Marks)**

(Total 10 Marks)

Question 05

Social Networks such as Facebook and Social Media such as YouTube are extremely popular world-wide.

(a) **Explain** three (03) possible negative impacts of social media on society in general or individuals.

(06 Marks)

(b) **Explain** what is meant by E-Waste and how we can reduce its impact on the environment.

(04 Marks)

(Total 10 Marks)

Question 06

(a) **Differentiate** between Internet Of Thing (IoT) and Internet Of Everything (IoE). **(04 Marks)**

(b) **Explain** what is meant by Data Visualisation. **(02 Marks)**

(c) Futurists predict that due to fourth industrial revolution related developments, individuals occupying jobs in several sectors may need to be re-skilled by the early 2020s.

Explain the reasons behind this prediction. **(04 Marks)**

(Total 10 Marks)

End of Section B

One (01) Compulsory Question

(Total 25 marks)

Question 07

With the rapid urbanisation in many developing countries, large retailers are using the Supermarket concept to reach out to large swathes of the population. According to Garner Research (2019) Digital Savvy consumers, new entrants and new business models are disrupting traditional retail.

One of Sri Lanka's top business conglomerates is planning to set up a Super market chain - TOP VALUE. They plan to initially open 50 Supermarkets across Sri Lanka and have tied up with leading local manufacturers and importers to provide best discounts for customers. They plan to commence businesses with a 1700 workforce across the supermarket chain. The company plans to issue a loyalty card called "TopMember" to provide discounts and offers to frequent customers including benefits from their hospitality chain. They also plan to aggressively market their products to social media savvy consumers who prefer digital channels. A few of the novel strategies they plan to use is to run self-checkout counters and 24 hour stores in major cities. They also plan to operate their supermarkets as "carbon neutral" business entities, with a focus on eliminating single use plastics, and renewable energy sources as much as possible.

The company considers Information Technology to be central to their business strategy, and plans to invest heavily in IT to streamline their operations, and use less human resources as much as possible.

You are required to:

(a) **Explain** how IT can provide insight to customer buying preferences / trends for the above scenario. State any assumptions you take.   **(05 marks)**

(b) **Explain** how manufacturers and importers of goods (suppliers) can be connected with the supermarket network to ensure minimum stock holding costs for TOP VALUE.   **(05 marks)**

(c) **Explain** what ways can TOP VALUE leverage social media users for it's benefit?   **(05 marks)**

(d) If the company plans to provide a mobile APP for customers, what features can they provide through it? **List** Six (06) Features.   **(06 marks)**

(e) **List** four (04) alternatives payment methods that the company should accept?   **(04 Marks)**

(Total 25 Marks)

End of Section C

Action Verbs Check List

Level of competency	Description	Action Verbs	Verb Definitions
Analysis (4)	Draws Connections Among Ideas and Solve Problems	Analyze	Examine in details to find the solution or outcome
		Differentiate	Constitute a difference that distinguishes something
		Discuss	Examine in detail by arguments
		Compare	Examine to discover similarities
		Contrast	Examine to show differences
		Outline	Make a summary of significant features
		Communicate	Share or exchange information
Application (3)	Uses and Adapts Knowledge in New Situations	Apply	Put to practical use
		Calculate	Ascertain or reckon with mathematical computation
		Demonstrate	Prove or exhibit with examples
		Prepare	Make or get ready for particular purpose
		Solve	Find solutions through calculations and/or explanation
		Assess	Determine the value, nature, ability or quality
		Graph	Represent by graphs
		Reconcile	Make consistent/compatible with another
Comprehension (2)	Explains Ideas and Information	Define	Give the exact nature, scope or meaning
		Explain	Make a clear description in detail using relevant facts
		Describe	Write and communicate the key features
		Interpret	Translate in to understandable or familiar terms
		Recognize	Show validity or otherwise using knowledge or contextual experience
Knowledge (1)	Recalls Facts and Basic Concepts	List	Write the connected items
		Identify	Recognize, establish or select after consideration
		State	Express details definitely or clearly
		Relate	Establish logical or causal connections
		Draw	Produce a picture or diagram

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SUGGESTED ANSWERS

Level II

202 - INFORMATION SYSTEMS IN DIGITAL ENVIRONMENT (ISD)

A publication of the Education and Training Division

Objective Test Questions (OTQs)
Fifteen (15) compulsory questions

(Total 25 marks)

Suggested Answers to Question 01:

1.6	-	4	1.1	-	3	1.11	-	True
1.7	-	1	1.2	-	2	1.12	-	False
1.8	-	2	1.3	-	4	1.13	-	True
1.9	-	2	1.4	-	1	1.14	-	True
1.10	-	1	1.5	-	4	1.15	-	True

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

Four (05) compulsory questions
(Total 50 marks)

Suggested Answers to Question 02:

> **Unit 1 – Concepts in information system and impact of information systems.**
>
> **Learning outcomes** - Describe characteristics of quality data.
>
> - Identify the fundamental components of an information system and describe their functions.
>
> - Explain the reason behind the widespread adoption of information systems in organizations and impact of information systems.

(a)

- Accuracy as required for its purpose of use :

  E.g. for financial figures sums are recorded in rupees and two digits for cents.

- Completeness:

  Refers to how comprehensive the data is? If data is is incomplete, it might be unusable. For example, when recording a name of a customer, you might need the customer's first and last name, but the middle initial may be optional.

- Reliability:

  Refers to data that does not contradict other data in a different source or system. if a patient's birthday is January 1st, 1970 in one system, yet it's June 13th, 1973 in another, the data is unreliable.

- Relevance :

    The data collected should be required for the purpose. If you are gathering irrelevant data, you are wasting time as well as money. Your analyses won't be valuable.

- Timeliness :

    Refers to how up to date data is. If it was gathered in the past hour, then it's timely – unless new data has come in that renders previous data useless. Timeliness is an important data quality characteristic, because data that isn't timely can lead to people making the wrong decisions. In turn, that costs organizations time, money, and reputational damage.

    (04 Marks for any four points)

(b) Information systems is an umbrella term for the systems, people and processes designed to create, store, manipulate, distribute and disseminate information. The field of information systems bridges business and computing. IT falls under the IS umbrella but deals with the technology involved in the systems themselves. Information technology can be defined as the study, design, implementation, support or management of computer-based information systems. IT typically includes hardware, software, databases and networks. **(02 Marks)**

(c) Any business, big or small, must have a system in place to collect, process, store and share data. In the past, these tasks required a lot of time and paperwork. Today, companies use modern technology to streamline and automate these operations. Information systems are now playing a crucial role in data processing and decision making. When used correctly, they can positively impact an organization's overall performance and revenue.

Modern technology can significantly boost a company's performance and productivity. Information systems are no exception. Organizations worldwide rely on them to research and develop new ways to generate revenue, engage customers and streamline time-consuming tasks.

With an information system, businesses can save time and money while making smarter decisions. A company's internal departments, such as marketing and sales, can communicate better and share information more easily.

Since this technology is automated and uses complex algorithms, it reduces human error. Furthermore, employees can focus on the core aspects of a business rather than spending hours collecting data, filling out paperwork and doing manual analysis.

Due to modern information systems, team members can access massive amounts of data from one platform. For example, they can gather and process information from different sources, such as vendors, customers, warehouses and sales agents, with a few mouse clicks. **(04 Marks)**

(Total 10 Marks)

> **Unit 2 – Information technology infrastructure.**
>
> **Learning outcomes** - Explain the process of obtaining network and internet connectivity for corporates and individuals.
>
> - Explain the different purpose of mobile computing device which can be used in the current context.

(a)

- ADSL : Upto 21 Mbps

- 4G Broadband : Upto 8 Mbps

- **<u>Fiber : Upto 100 Mbps</u>** **(04 Marks)**

(b)

- Provide Software as a Service : Organisation can use cloud based software such as Office 365, Google Docs

- Provide Infrastructure as a Service : provides the computing infrastructure, physical or (quite often) virtual machines and other resources like virtual-machine disk image library, block and file-based storage, firewalls, load balancers, IP addresses, virtual local area networks etc. Examples : Amazon EC2, Windows Azure, Rackspace, Google Compute Engine

- Provide Platform as a Service : provides you computing platforms which typically includes operating system, programming language execution environment, database, web server etc. Examples: AWS Elastic Beanstalk, Windows Azure, Heroku, Force.com, Google App Engine, Apache Stratos. **(03 Marks)**

(c) No a datacentre is a too costly and unnecessary option for a company of this magnitude. If the company requires, they can get cloud services / third party data centers to host their data more economically. If they feel storing data is a risk, they can use servers locally within their premises, with required redundancy. **(03 Marks)**

(Total 10 Marks)

> **Unit 3 – Information system in organization.**
>
> **Learning outcomes** – Describe types of information systems available in organizations and explain necessary organizational requirements that must be in place to ensure successful implementation and use of the system.

(a) Business process outsourcing, is a business practice in which one organization hires another company to perform a task (i.e., process) that the hiring organization requires for its own business to successfully operate.

The Business Process Outsourcing:

- Call Centre / Help Desk facilitation.

- Knowledge Process Outsourcing such as Machine Learning / Training.

- Outsourcing Processes such as Accounting / Data Entry / Digitisation of Documents.

(04 marks)

(b) Enterprise resource planning (ERP) is business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources. ERP software typically integrates all facets of an operation — including product planning, development, manufacturing, sales and marketing — in a single database, application and user interface.

- SAP

- Netsuite

- SAGE

(05 Marks)

(Total 10 Marks)

Suggested Answers to Question 05:

> **Unit 5 – Ethical, social and legal environment for information system.**
>
> Learning outcomes – Identify different social media and social network available for use today and explain their impact.
>
> - Explain several major security threats associated with information systems.

(a)

- Dissemination of Fake News which can create unrest among society or groups of people.

- Posting of Information which is harmful for individuals and business organisations, which can affect their reputation, often one sided, unverified reports.

- Identity Theft : Stealing profiles belonging to others can posting of malicious.

- Addiction and Time wasting.

- Poor Mental Health symptoms such as Depression and Anxiety.   **(06 Marks for any three points)**

(b) Electronic waste or e-waste describes discarded electrical or electronic devices.

Electronic scrap components, such as CPUs and Batteries, contain potentially harmful materials such as lead, cadmium, beryllium, or brominated flame retardants. Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution.

To reduce the impact on the environment we can re-use some items, this can be by even donating them to others. Further re-cycling them and collecting of such items for delivery to proper re-cyclers is essential to limit environmental impact.   **(04 Marks)**

(Total 10 Marks)

Unit 5 – Technology trend impacting on information systems.

Learning outcomes –   Identify the driving forces of the 4th industrial resolution and explain their technology foundation.

-   Describe how today organizations and individuals can gains competitive advantage by adopting the merg ing   technologies.

(a)   IoT refers to Internet of Things, while IoE refers to Internet of Everything.

IoT is one generation before IoE. IoT includes all the usage of connectivity with internet between the things we use often in a today's life such as cars and smart watches, but IoE includes a more generic and futuristic figure of that where everything around us is connected such as shoes and clothes while they can distribute the information between them to make our lives easier.

(04 Marks)

(b)   Data visualization is the act of taking information (data) and placing it into a visual context, such as a map or graph. Data visualizations make big and small data easier for the human brain to understand, and visualization also makes it easier to detect patterns, trends, and outliers in groups of data. **(02 Marks)**

(c)   At present there are jobs which are repetitive in nature. Most jobs which require simple physical force and action are now being replaced by machinery at homes and especially at factories. However it is assumed that jobs which involve simple computational work (Data Entry, Risk Assessment, Baking and Retail Checkout) will be replaced by AI Powered Computational devices.

(04 Marks)
(Total 10 Marks)

End of Section B

Suggested Answers to Question 07:

> **Unit 4 – Ethical, social and legal environment for information systems.**
>
> **Unit 2 – Information technology infrastructure.**
>
> **Learning outcomes** – Identify different social media & social networks available for use today and explain their impact.
>
> - Identify and describe the role of each components of organizations information technology infrastructure.
>
> - Explain the different purpose of a mobile computing device.

(a) Assumption – All customers are entered into the loyalty card scheme.

If the customer purchases can be tracked by their card number, it is possible to provide historical analysis on their purchases, as well as analyse clusters of customers based on features such as age, gender etc. This is especially easy if the data is stored in computer based databases. Business Analytics software can provide these insights. **(05 Marks)**

(b) The company can use an ERP solution and extend it to serve as an extranet so that others companies can receive orders electronically. Once an items stock in a branch falls below the re-order level, a order can be automatically raised with their supplier. **(05 Marks)**

(c) TOP VALUE can set up pages in social media to enable customers get information on their new products, as well as special discounts and promotion periods. Further competitions can be organised on social media to promote their brand visibility. Further the company can enable customers to contact the supermarket. **(05 Marks)**

(d)

- Push Promotions.

- Customer Support / Messages to the Supermarket / Inquiries.

- Store Locator / Feature to locate the closest branch, and given directions to it.

- Show points accrued from the Loyalty card / Convert Points to cash.

- Use as an E-Loyalty Card.

- Provide Discount Coupons for products using QR Codes.

- Use it as a payment platform / e-cash app.

- Use it as a barcode reader to provide additional information on selected / purchased products.

(06 Marks)

(e)

- Cash

- Credit Cards

- Debit Cards

- Third party Electronic Payment Solutions (WePay, FriMi, Payhere…)

- Their own Points / e-cash

(04 Marks)

(Total 25 Marks)

End of Section C

Information Systems in Digital Environment   **AAT Sri Lanka**