



CERTIFIED PUBLIC ACCOUNTANT
FOUNDATION LEVEL 2 EXAMINATIONS
F2.3: INFORMATION SYSTEMS
DATE: TUESDAY 28, NOVEMBER 2023
MARKING GUIDE AND MODEL ANSWERS

QUESTION ONE

Marking guide

Sub question	Criteria	Marks
(a)	1 mark for stating the use of EDI and 1 mark per point for use of internet, Maximum 5 Marks	5
(b)	0.5 marks for the platform and 0.5 marks for explanation, Maximum 5 Marks	5
(c)	1 mark for outline and 1 mark for explanation, Maximum 10 Marks	10
Total for Question 1		20

Model answers

(a) Igisubizo should utilize digital technology and the Internet to carry out the organization's main business activities and with suppliers by

- Using Electronic data interchange (EDI) that enables automated computer-to-computer exchange between two organisations of standard transactions such as invoices, shipment schedules, or purchase orders
- Using EDI to automate transactions for B2B e-commerce and supply chain management transactions. Suppliers can automatically send data about shipments to purchasing firms.
- The purchasing firms can use EDI to send details of inventory requirements and payment data to suppliers.
- Using internet which provides a much more flexible and low-cost platform for linking to other firms.
- Business-to business transactions can occur via a company's Web site, net marketplace, or private exchange and utilise intranets and extranets

(b) The online platform that Igisubizo can use to compete with its rivals are:

- **Direct Sales:** The customer can purchase a product or service directly from a company's Web site.
- **Interactive marketing:** The Internet provides a number of ways for companies to interact and communicate with customers and build relationships with them.
- **Personalization and Customization:** Marketers can use the interactive features of Web pages to keep consumers engaged and to capture information about their tastes and interests as they move around the Web site.
- **Blogs (short for Weblog)** are usually maintained by an individual with regular entries of commentary, descriptions of events, etc. Businesses are increasingly using blogs to communicate with customers and suppliers to announce new products or services and to get feedback about company services

- **Social Networks:** Businesses are realizing the value of providing easy ways for interaction with customers to enable a sharing of ideas and collaborate with each other.

(c) Igisubizo should utilize digital technology and the Internet to carry out the organization's main business activities and with suppliers by

- Using Electronic data interchange (EDI) that enables automated computer-to-computer exchange between two organisations of standard transactions such as invoices, shipment schedules, or purchase orders
- Using EDI to automate transactions for B2B e-commerce and supply chain management transactions. Suppliers can automatically send data about shipments to purchasing firms.
- The purchasing firms can use EDI to send details of inventory requirements and payment data to suppliers.
- Using internet which provides a much more flexible and low-cost platform for linking to other firms.
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QUESTION TWO

Marking guide

Sub question	Criteria	Marks
(a)	2 marks for stating each reason of using of Information System, Maximum 8 Marks	8
(b)	1 mark for stating problem and 1 mark for explaining solution, Maximum 6 Marks	6
(c)	1 mark for naming the type of system and 1 mark for each point in the explanation, Maximum 3 Marks	3
(d)	1 mark for each point related to what TPS handles and 1 mark for the purpose of TPS, Maximum 3 Marks	3
Total for Question 2		20

Model answers

a) Four reasons why Kwiku Shop would profit from using information systems from a business standpoint are:

- Information systems enable Kwiku shop to increase its revenue.
- Information enable Kwiku to decrease its costs by providing information that helps managers make better decisions and decrease its cost by proving information that improves the efficiency of business processes.
- The value of an information system to kwiku business is determined by how the use of the system will lead to better management decision making.
- The value of an information system to kwiku business is determined by how the use of the system will lead More efficient business processes and ultimately to higher profits.

b) The information system's issues in detail, along with any proposed solutions in Kwaku shop are:

- A technical approach to information systems emphasizes the use of mathematical models to study information systems, the physical technology used to construct the systems and the capabilities of information systems the proposed solution is the use of areas of study that contribute to the technical approach which are computer science, management science and operational research.
- The behavioural approach does not ignore technology, but tends to focus on non-technical areas. Solutions to problems created by information technology are primarily changes in attitudes, management, organisational policy and behaviour. The disciplines that contribute to the behavioural approach are psychology, sociology and economics
- The sociotechnical view of systems approach it is also concerned with behavioural issues surrounding the development, use and impact of information systems.as solution

Organisations and individuals must also be adapted through training, learning and planned organisational change to utilise the new technology as much as possible

c) The type of system that should be used by Kwiku to make its business operates more efficiently is Transaction Processing Systems (TPS) support the day-to-day or week-to-week processing and recording of routine business transactions such as Orders, Dispatch Notes, Invoices, Credit Notes and Payments

d) The system referred to in (b), the transaction processing system, and handles transactions, keep records, and provides information. The Transaction Systems processing are utilized in the Kwiku shop's functional areas of sales, purchases, and accounts.

QUESTION THREE

Marking guide

Sub question	Criteria	Marks
(a)	0.5 marks for naming and 0.5 marks for explanation, Maximum 5 Marks	5
(b)	1 mark for clarifying data management in DB, Maximum 5 Marks	5
(c)	1 mark for outline and 1 mark for explanation, Maximum 6	6
(d)	0.5 marks for outline and 0.5 marks for explanation, Maximum 4 Marks	4
Total for Question 3		20

Model answers

- a) The issues with the traditional file environment of KGL Fitness Company are:
- **Data redundancy** is the presence of duplicate data in multiple data files. In this situation, confusion results because the data can have different meanings in different files.
 - **Program-data dependence** is the tight relationship between data stored in files and the specific programs required to update and maintain those files. This dependency is very inefficient, resulting in the need to make changes in many programs when a piece of data, has to be changed
 - **Lack of flexibility** refers to the fact that it is very difficult to create new reports from data when needed.
 - **Poor security** results from the lack of control over the data because the data are so widespread.
 - **Data sharing** is virtually impossible because it is distributed in so many different files around the organization and each file can only be accessed by its own application.
- b) The database should be used to manage data in a gym management system in the following way:
- A database consolidates records previously stored in separate files into a common pool of data elements that provides data for many applications.
 - The data stored in a database is independent of the application programs using them and of the type of storage device on which they are kept.
 - Therefore, a single database can serve multiple applications.
 - All the data is consolidated into a single database eliminating data duplication and redundancy.
 - The data can therefore be shared by multiple applications.

c) The key components of computer hardware that should be taken into account when buying a computer to create a gym management system are:

- The capacity of processor (Central Processing unit): Manipulates raw data into a more useful form and controls the other parts of the computer system
- The size of Primary storage (RAM): stores data and program instructions during processing
- The size of (Hard disk) secondary storage: store data and programs when they are not being used in processing.

d) The four classes of computer are:

- **Microcomputers** are the most important category of computer for business people and consumers. Microcomputers are normally referred to as personal computers or PCs
- **Midrange computers** including minicomputers and high-end network servers are multi-user systems that can manage networks of PCs and terminals.
- **Mainframe computers** are large, fast and powerful computing systems. These systems are normally found in large corporations who have significant transactions processing volumes Complex computational problems.
- **Super computer:** are biggest in size, the most expensive in price than any other is classified and known as super computer. It can process trillions of instructions in seconds.

QUESTION FOUR

Marking guide

Sub question	Criteria	Marks
(a)	1 mark for stating the reason, Maximum 5 Marks	5
(b)	1 mark for naming ,1mark for explanation and 1 mark for example, Maximum 6 Marks	6
(c)	2 marks for hot desking and 2 marks for remote working, Maximum 4 Marks	4
(d)	1 mark for each related to issues and 1 mark for each component of GDSS, Maximum 5 Marks	5
Total for Question 4		20

Model answers

- a) An expert system can be used in the following situations:
- By non-experts to improve their problem-solving capabilities
 - To propagate scarce knowledge resources for improved consistent results
 - Where the area of expertise is limited to a narrow area (referred to as the domain)
 - As a tool to improve productivity and quality
 - To support strategic decisions
- b) The two types of knowledge that BTC was looking for are:
- **Explicit knowledge** is knowledge that has been documented (codified) and can be made available to others. Explicit knowledge includes procedures, guides, reports, guides, policies.
 - **Tacit (implicit) knowledge** is the expertise, experience, skills know-how, understanding, insights and learning of organizational members that has not been formally documented. Tacit knowledge is slow, difficult and costly to capture and document as it tends to be very personalized.
- c)
- Because sharing workstation makes better use of space, especially if you work in a small office with limited movement. Rather than cramming 20, even 30 employees into an office at the same time, perhaps 10 to 15 people will work in the office while the remaining employees work remotely.
 - These employees may not even be in the office at the same time. Remote working is based on the idea that “work is an activity we do, not a place we go.

d) The issues with group decision-making are:

- Related to group decision making that have led to the development of GDSS are the growth in the number and frequency of decision-maker meetings
- The growing length of these meetings, and the increased number of people attending these meetings.

The basic elements of GDSS are:

- Hardware includes: the electronic conference facility itself (virtual room) that is laid out to support group collaboration. It also includes electronic hardware such as electronic display boards as well as audio-visual, computer and networking equipment.
- Software tools include electronic questionnaires, electronic brainstorming tools, tools for voting or setting priorities, stakeholder identification and analysis tools, and group dictionaries.
- People include the participants, a trained facilitator, and the staff to support the hardware and software.

QUESTION FIVE

Marking guide

Sub question	Criteria	Marks
(a) (i)	1 mark for describing each the advantage, Maximum 6 Marks	6
(a)(ii)	1 mark for outline and 1 mark for explanation, Maximum 4 Marks	4
(b)	0.5 marks for outline and 0.5 marks for explanation, Maximum 5 Marks	5
(c)	1 mark for define, 0.5 marks for each standard, 0.5 mark for each mode and 1 mark for explanation of each mode, Maximum 5 Marks	5
Total for Question 5		20

Model answers

(a)(i) The six advantages that wireless technology-based e-learning will have for KWIMO College's operations are:

- Wireless technology gives firms more flexibility and the ability to innovate.
- Wireless systems support business processes that are not limited by time or location
- The technology extends the company's reach.
- E-learning save employees Customer's substantial amounts of time.
- The technology provides a new channel for connecting with customers.
- The technology can also be a source of exciting new products and services

(a)(ii) The 2 management challenges caused by wireless technology-based e-learning are:

Integrating this technology into the firm's IT infrastructure: It will be a challenge to integrate this new network infrastructure with the firm's existing infrastructure and applications. Central coordination and oversight are required.

Gains in productivity and efficiency from equipping employees with wireless mobile computing devices must be balanced with increased costs associated with integrating these devices into the firm's IT infrastructure and providing technical support

Maintaining security and maintaining privacy: Maintaining security and privacy poses special challenges for users of wireless technology. Wi-Fi security is not well developed, making such systems especially vulnerable to infiltration from outsiders. Wireless systems are easily susceptible to interference from other devices fin the same bandwidth.

b) The 5 wireless cellular generations are:

- 1G: Low, Analogue cellular networks for voice communication
- 2G: 10 to 14 Kbps. Digital wireless networks, primarily for voice communication; limited data transmission capability
- 2.5G: 50 to 144 Kbps, Interim step toward 3G in the US similar to GPRS in Europe
- 3G: 144 Kbps to 2+Mbps, High speed, mobile, supports video and other rich media, always on for e-mail, Web browsing, instant messaging
- 4G: Up to 100Mbps, this is the next evolution of wireless cellular networks

c) WI-FI and how it operates:

Wi-Fi stands for Wireless Fidelity and refers to the 802.11 family of wireless networking standards. It has 2 standards in the unlicensed 5GHz frequency range and has an effective distance of 10 to 30 meters. The 802.11a standard can transmit up to 54Mbps and the 802.11b standard can transmit up to 11 Mbps in an unlicensed 2.4 GHz band and has an effective distance of 30 - 50-meter area.

A Wi-Fi system can operate in two different modes:

- Infrastructure Mode: In this mode, wireless devices communicate with a wired LAN using access points. An access point is a box consisting of a radio receiver/transmitter and antennas that link to a wired network, router, or hub. Each access point and its wireless devices are known as a Basic Service Set (BSS).
- Ad-hoc Mode: In this mode, also known as peer-to-peer mode, wireless devices communicate with each other directly and do not use an access point. Most Wi-Fi communications use an infrastructure mode.

QUESTION SIX

Marking guide

Sub question	Criteria	Marks
(a)	1 mark for each step of risk mitigation, 0.5 marks for each strategy and 0.5 marks for the explanation, Maximum 5 Marks	5
(b)	0.5 marks for naming and 0.5 marks for explanation of each, Maximum 3 Marks	3
(c)	1 mark for each description of how it works, Maximum 6 Marks	6
(d)	1 mark for each difficult and 1 mark for each solution, Maximum 6 Marks	6
Total for Question 6		20

Model answers

a) The steps BTC bank can take and the tactics they can use to make sure that such problems don't arise again are:

- They can implement controls that are likely to reduce or eliminate the risk
- They can develop some way of recovering the asset if a breach occurs.
- Risk acceptance: continuing without controls and accept any loss that occurs
- Risk limitation: implement some controls to reduce the risk
- Risk transference: use other means to compensate for possible loss like purchasing Insurance

b) The 3 application general controls for computer systems are:

- Input controls are procedures to check data for accuracy and completeness when they enter the system.
- Processing controls are the routines for establishing that data are complete and accurate during updating. Common controls include control totals, computer matching and run control totals.
- Output controls are measures to ensure that the outputs after processing are accurate, complete and distributed to the correct recipients.

c) Network Address Translation (NAT) technology protects information resources. Clarify disaster recovery planning by:

- Providing an additional level of protection when implemented along static packet filtering and stateful inspection.
- NAT hides the IP address of the organisation's internal host computer(s) .
- Prevent sniffer programs outside the firewall from determining their identity and using that information to penetrate internal system.
- The internal private IP address is temporarily assigned a public IP address for the duration of the communication.
- Messages inside the firewall will utilise the hosts own IP address but once the message passes through the firewall it uses the public IP address.
- The IP address translation occurs in the firewall.

d) The difficulties caused by information system security, control, and management solutions are:

- Establishing a good framework for security and control requires skilful balancing of risks, rewards and the firm's operational capabilities.
- Designing systems that are neither over- controlled nor under-controlled
- Implementing an effective security policy are major management challenges.
- To address these issues, management needs to make security and control a higher priority within the firm.
- Management needs to determine what is an appropriate level of control for the organisation.

QUESTION SEVEN

Marking guide

Sub question	Criteria	Marks
(a)	1 mark for each usage of DB to the company, Maximum 5 Marks	5
(b)	1mark for issues affecting data management, Maximum 5 Marks	5
(c)	1 mark for each point on traditional file environment, Maximum 5 Marks	5
(d)	1 mark for each point on data quality consideration in DB, Maximum 5 Marks	5
Total for Question 7		20

Model answers

- a) GM Transport Company will use a database to enhance business and decision-making by
- Keep track of basic transactions
 - Providing information that will help the company run the business more efficiently
 - Helping managers and employees make better decisions
 - It provides customer data management by storing current and historical data that is of interest to the organisation (customer)
 - Allows businesses to manage all the company's essential information in one place. It saves you lots of time looking for vital information about your business progress as you can access it all in one place.
- b) The five problems that the GM Transport Company's data management facing are:
- The amount of data being generated in information systems is growing at a phenomenal rate.
 - Data must be stored for a long period of time, both for legal reasons and so it can be analyzed to aid business decision making.
 - Data is collected by many groups within in the organization using different methods and technology.
 - Data is stored using different servers, systems, databases and formats.
 - Only a small fraction of an organization's data is appropriate for aiding any specific decision.
 - An increasing amount of external data needs to be considered when making decisions.
 - Data security, quality, and integrity are critical issues for those managing organizational data

- c) Briefly describe the difficulties with the current file management system at the company are:
- Information cannot be used effectively if it is stored in a disorganized, inflexible manner.
 - Without proper file management, it may be difficult or even impossible to extract information from an automated system.
 - Retrieving a simple report can be timely and costly, if the information is not properly managed.
 - File management must also be flexible enough to accommodate new pieces of information or to combine different pieces of information in changing ways.
 - When computer files are poorly managed it will result in poor performance, high costs, and minimal flexibility.
- d) The importance of taking data quality into account in the proposed system are the following:
- Organisations need to identify and correct faulty data and establish routines to edit and update data once a database becomes operational
 - Analysis of the quality of the data involves doing a data quality audit
 - Database design should include efforts to maximise data quality and eliminate error
 - Organisations need to identify and correct faulty data and establish better controls for input and editing
 - Some data quality problems result from redundant and inconsistent data, but most stem from errors in data input.

END OF MARKING GUIDE AND MODEL ANSWERS