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**CERTIFIED PUBLIC ACCOUNTANT
FOUNDATION LEVEL 2 EXAMINATIONS
F2.3: INFORMATION SYSTEMS
DATE: TUESDAY 27, FEBRUARY 2024
MARKING GUIDE AND MODEL ANSWERS**

QUESTION ONE

Marking guide

Sub question	Criteria	Marks
a)	0.5 marks for each outlined consequence.	5
b)	1 mark for each explained term. If outlined only 0.5 mark	5
c)	2 marks for each explained challenge. If only outlined then 1 mark.	10
	Total	20

Model answers

a) Outline ten consequences that systems development projects without proper management are likely to suffer at URURABO LTD.

- Significantly higher expenses than projected
- Unexpected time slippage
- Lower-than-expected technical performance
- Unexpected benefits not realized
- Poor user interface
- Poor data quality
- Systems not being used as intended
- Failure to meet business requirements
- Low-quality systems
- Inadequate scope definition

b) Explain the following terms as used when selecting projects.

- (i) Management Structure for Information System Projects:** The management structure for information systems projects in a large corporation aid in making sure that the most crucial projects are given top priority. Systems project management responsibilities are delegated to each level of the hierarchy's management hierarchy.
- (ii) Strategic planning group:** The corporate strategic planning group, positioned at the top of the hierarchy, is in charge of creating the organization's strategic plan, which may require modifications to already-existing systems or the development of new ones.
- (iii) Information systems steering committee:** The **information systems steering committee** is the senior management team in charge of developing and running systems. It is composed of department managers from the information systems and end-user domains. Plans for every system are examined and approved by the steering committee.

- (iv) **Project management group:** Information systems managers and end-user managers make up the project management group, which is in charge of managing the project team and supervising individual information systems projects.
 - (v) **Project teams:** The individual systems project is under the project teams' purview. A team consists of database experts, programmers, systems analysts, and specialists from the pertinent end-user business areas.
- c) **Discuss five challenges of change management.**

- **Opposition to Change:** Employees and stakeholders may be resistant to change because they are reluctant to stray from well-known routines and procedures, fear the unknown, or worry about their job security. project's collapse.
- **Uncertain Goals and Communication:** Employee confusion and misunderstanding can result from inadequate communication regarding the change's goals, objectives, and advantages.
- **Insufficient Leadership Support:** Employee trust and confidence may be damaged if leadership does not show commitment to the change initiative or does not fully support it.
- **Employee engagement:** Employee engagement that is poorly managed can result in resistance and lower buy-in. When workers are not sufficiently involved in the change process, they may feel disengaged and powerless.
- **Insufficient Funding, Time, and Training:** Insufficient funding, time, and training can all be obstacles to the effective implementation of change.

QUESTION TWO

Marking guide

Sub question	Criteria	Marks
a)	2 marks for each explained category. If outlined only 1mark	10
b)	2 marks for each explained category. If outlined only 1mark	10
	Total	20

Model answers

- a) **Discuss at least five broadband transmission capabilities or access to the Internet available to organizations with services that require high speed.**
- **Asynchronous Transfer Mode (ATM):** ATM unites all the disparate components of a network into what the user sees as a single network. Data is divided into consistent cells for fast transmission.

- **ISDN:** An international communications standard for data, video, and voice transmission over digital telephone lines is called the Integrated Services Digital Network.
- **Leased Line:** This is a long-term link between two locations that is often established by a telecom provider. Businesses typically use leased lines to connect geographically separated offices. A leased line is constantly in use, as opposed to standard dial-up connections.
- **Digital Subscriber Line (DSL) Broadband:** DSL technologies use sophisticated modulation schemes to send data at high speeds over standard copper telephone wires. DSL can be used to provide high-speed connection to the Internet.
- **Cable modem** is service for high-speed transmission of data over cable TV lines that are shared by many users.

b) Discuss at least 5 opportunities that come with the integration of wireless technology at MOBILCOM and all other sectors.

- **Enhanced Mobility and Connectivity:** Wireless technology facilitates seamless communication between devices without the need for physical cables. Users benefit from greater mobility as a result, which promotes a more adaptable and dynamic work and lifestyle.
- **Advances in the Internet of Things (IoT):** The expansion of the Internet of Things (IoT) depends critically on wireless connectivity. It makes it possible for sensors and devices to interact, exchange data, and communicate, which improves automation, data gathering, and decision-making.
- **Remote Monitoring and Control:** A variety of systems and devices can be remotely monitored and controlled thanks to wireless technology.
- **Effective Communication Networks:** Scalable and adaptable solutions for effective data transfer are offered by wireless communication networks. Maintaining successful communication in both personal and professional contexts requires doing this.
- **Improved Media and Entertainment Consumption:** Wireless technology has revolutionized People's use of media and entertainment. High-speed wireless connections enable virtual reality experiences, wireless audio streaming, and streaming services.
- **Smart Cities and Infrastructure:** The development of smart cities is greatly facilitated by the integration of wireless technology. It makes possible more effective resource management, better public services, and higher living standards for locals.
- **Innovation in Healthcare and Education:** Wireless technology facilitates creative approaches to healthcare and education. It makes telemedicine, distant learning, and the provision of healthcare services in places without easy access to conventional infrastructure possible.

QUESTION THREE

Marking guide

Sub question	Criteria	Marks
a)	1 mark for each explained term. If outlined only 0.5 mark	10
b)	1 mark for each explained term. If outlined only 0.5 mark	10
	Total	20

Model answers

a) Outline 10 benefits GIHIRA Cooperative can gain from implementing ERP systems.

- Better data accessibility for management reporting and decision-making
- Assisting in the development of a more disciplined organizational culture where decisions are founded on accurate and timely information
- Helping to give management a single organizational-wide view
- Eliminating rigid legacy systems that can be costly to modify
- Enhancing work processes and enabling cross-functional processes
- Enhancing the organization's technological infrastructure
- Improvement of the technology infrastructure of the organization
- Providing the opportunity to assist an organization in becoming more customer focused
- Growing the business
- Increasing process efficiency

b) Outline 10 challenges associated with implementing ERP systems at GIHIRA Cooperative.

- The cost of purchasing and implementing ERP systems is high;
- Significant process changes are needed;
- Integration between ERP systems and legacy systems can be challenging;
- Having a single vendor for all information systems carries inherent risk;
- The risk and consequences of an implementation failure are heightened;
- The process of converting data from legacy systems to ERP systems is complex;
- The deployment period is constrained;
- Significant resources are needed to implement ERP systems;
- Limited expertise in ERP implementation;
- Periodic maintenance is required.

QUESTION FOUR

Marking guide

Sub question	Criteria	Marks
a)	2 marks for each explained category. If outlined only 1 mark	10
b)	2 marks for each explained category. If outlined only 1 mark	10
	Total	20

Model answers

a) **Discuss five different views of the information system GIHOZO Service LTD owner should know about to improve his business.**

- **Technical Approach:** A technical approach to information systems places a strong emphasis on the capabilities of information systems, the physical technology utilized to build the systems, and the application of mathematical models to study information systems. Computer science, management science, and operational research are the fields of study that support the technical approach.

- **Behavioral Approach:** The behavioral approach focuses more on non-technical areas while still acknowledging the importance of technology. Strategic business integration, behavioral issues associated with system use, rational system design and implementation, social and organizational impacts of information systems, political impacts of information systems, and individual responses to information systems are among the topics covered by a behavioral approach to information systems. The main ways to address issues brought about by information technology are through behavioral, organizational policy, management, and attitude adjustments. The fields of economics, sociology, and psychology are involved in the behavioral approach.

- **A Socio-technical Systems Approach:** With a practical focus on creating system solutions to business problems, the study of Management Information Systems (MIS) integrates the work of computer science, management science, and operations research. It also addresses behavioral issues related to the creation, application, and consequences of information systems, which are normally studied in the domains of psychology, sociology, and economics. According to the sociotechnical perspective on systems, optimizing both the social and technical systems utilized in production leads to the best possible organizational performance. Technology must be modified and created to meet the demands of both individuals and organizations. To make the most use of the new technology, organizations and individuals must also adapt through learning, training, and planned organizational change.

- **Social approach:** Understanding and taking into account the social, cultural, and human factors connected to the creation, application, and utilization of information systems (IS) is known as the social approach in information systems.

- **Process approach:** The process approach in information systems refers to a methodical and structured way of creating, implementing, managing, and enhancing information systems. It entails seeing information systems as a collection of linked procedures that cooperate to accomplish organizational objectives.

b) Briefly describe five key management challenges involved in building, operating, and maintaining information systems.

- The **strategic business challenge** is the process by which organizations can be designed to be competitive, efficient, and digitally enabled through the use of information technology.
- The **globalization challenge** facing organizations is how businesses comprehend the needs of a global economic environment in terms of systems.
- The **information architecture and infrastructure challenge** is that in an era where technology and business environments are changing at such a rapid pace, companies need to be able to create information architectures that support their goals.
- The **information systems investment challenge** is how businesses assess a system's business value.
- The **responsibility and control challenge** is a way for businesses to guarantee that the use of their information systems is morally and socially acceptable.

QUESTION FIVE

Marking guide

Sub question	Criteria	Marks
a)	2 marks for explanation	2
b)	2 marks for explanation	2
c)	2 marks for each explained category. If outlined only 1 mark	6
d)	1 mark for each outlined item	10
	Total	20

Model answers

a) Define business processes as used in information systems.

- Business processes refer to how organizations co- ordinate and organize activities, information, and knowledge to produce their products or services.

b) What does the performance of a Fayes Ltd depend on?

A company's ability to operate is based on how well its business processes are planned and executed. Some processes are related to a single functional area, like sales and marketing, while others span numerous functional areas and necessitate departmental coordination.

c) Define three types of information systems Fayes Ltd might explore and integrate in his company.

- Transaction Processing Systems (TPS) are Systems that keep track of elementary activities of the organization, such as sales, cash deposits, and employee clock punches. The main purpose of a TPS is to record daily routine transactions, answer routine questions, and track the flow of transactions. A common TPS application is a payroll TPS.
- Management Information Systems (MIS). MIS are Systems that monitor, control, and administer other activities. They summarize and report on an organization's data as supplied by the Transaction Processing System. MIS is a specific category of internal Information Systems that serve middle-level managers.
- Decision Support System (DSS) supports non-routine decision-making for middle management. DSS focuses on unique and constantly changing problems. DSS uses modeling to visualize the problem and proposed solutions.

d) Outline ten ways in which information systems will enhance business processes at Fayes Ltd.

- Increasing the productivity of current business processes;
- Opening up completely new processes that could revolutionize the industry;
- Streamlining business processes so that tasks can be completed more quickly when they can be completed concurrently rather than sequentially.
- Information systems have the ability to propel inventive business models that might not be achievable in the absence of technology.
- Utilize virtual teams;
- Support the implementation of lean production or management;
- Offer tracking and traceability
- Allows businesses to react quickly to requests from customers.
- Enhances decision-making by raising the standard of information available to managers at all levels.
- Make room for business expansion

QUESTION SIX

Marking guide

Sub question	Criteria	Marks
a)	2 marks for each explained category. If outlined only 1 mark	10
b)	2 marks for each explained category. If outlined only 1 mark	10
	Total	20

Model answers

(a)

- **Internal knowledge management systems**

Successful knowledge management is essential for any organization. Internal knowledge management systems help team members share information easily and effectively, improving teamwork and knowledge management. Easy-to-use interfaces with sophisticated search features that guarantee safe access controls for better decision-making and resource optimization are among the essential components of such a system.

- **Enterprise knowledge bases for knowledge management**

Knowledge management success requires centralized enterprise knowledge bases. These systems enable stakeholder collaboration while storing and managing an organization's information. They are easily integrated with other tools, like email workflow or documentation management systems, and can be tailored to meet specific needs.

- **Document management systems for knowledge management**

Document management systems facilitate the organization and storage of documents by reducing risks and facilitating the retrieval of crucial information. To guarantee that everyone has access to updated information, these systems even provide version control. These useful knowledge management tools are still in use today; Dropbox, Google Drive, and SharePoint are some examples.

- **External knowledge management systems**

A mechanism for collecting data from outside sources must be in place for practical knowledge management. Keeping abreast of industry trends and best practices requires the use of external knowledge management systems, such as social media platforms, online forums, and external databases. Additionally, these systems aid in the identification of possible market competitors or partners. By incorporating real-time input from stakeholders via email, workflow, documentation, and customer feedback, businesses can make sure they have the necessary knowledge.

- **Customer support knowledge bases**

Businesses use efficient knowledge management systems, such as customer support knowledge bases, to deliver outstanding customer experiences. Instead of relying on email chains or silos, these systems use AI-powered search bars, tutorials, webinars, and self-service workflows to provide customers with the right information at the right time. The help center on a company's website or app makes it simple for customers to access these resources.

(b) Discuss five examples of Knowledge Work Systems.

- Computer-aided design (CAD) tools: Design creation and revision can be automated with the use of computers and advanced graphics software. Design engineers use computer-aided design (CAD) software to create new products or enhance existing ones. The time it takes to design new automobiles and aircraft has been greatly shortened by modern CAD systems, which ultimately saves the auto industry and aircraft manufacturers millions of dollars.
- Virtual reality systems: Possess advanced simulation and visualization features that far surpass those of traditional CAD systems. They make use of computer-generated simulations that aim for maximum realism. Users of many virtual reality systems must wear specialized gear that records their movements and feeds that data back to the computer so the computer can program how it will react to user input. Virtual reality is starting to offer advantages in business, science, and education.
- VRML (Virtual Reality Modelling Language) is a collection of guidelines for Web-based interactive 3-D modeling. Some businesses are posting their training programs online so that users can access the most recent information whenever they need it. Java applets are used by certain websites to assist in the processing of local workstation programs.
- Investment workstations: These are used in the financial sector to analyze trading situations instantaneously and facilitate portfolio management.
- Collaboration and Communication platform: Knowledge workers can interact, exchange ideas, and work together in real-time on projects with the help of collaboration systems. They come with functions like video conferencing, file sharing, chat rooms, and messaging.

QUESTION SEVEN

Marking guide

Sub question	Criteria	Marks
a)	2 marks for each explained category. If outlined only 1 mark	10
b)	2 marks for each explained category. If outlined only 1 mark	10
Total		20

Model answers

a) Discuss at least five importance of Data Quality.

- **Raised data confidence**

Increasing data confidence entails resolving data quality concerns, such as errors, inconsistencies, and inaccuracies, to guarantee that the information at hand is trustworthy and that decision-makers can use it with a high degree of confidence.

- **Better decision-making**
The concept of "better decision-making" pertains to the notion that data of superior quality, which is defined by correctness, consistency, completeness, and dependability, enhances informed, dependable, and efficient decision-making procedures in an establishment.

- **Increased scalability**
"Increased scalability" describes a system's, process, or solution's capacity to effectively manage an increasing amount of data while upholding and even enhancing data quality standards. It entails creating procedures and systems for data management that grow in scope and complexity while continuing to function well.

- **Improved consistency**
The term "improved consistency" describes the extent to which information is consistent, standardized, and devoid of contradictions or inconsistencies throughout a dataset, database, or information system. Data consistency promotes trustworthy and insightful analysis by guaranteeing that the information is accurate and faithfully conveys the intended meaning.

- **Readiness to deal with changes in the business environment**
In the context of data quality, "readiness to deal with changes in the business environment" refers to the organization's capacity and readiness to modify its systems, procedures, and practices for data management in response to shifting market conditions. It entails making certain that data is adaptable, responsive, and able to satisfy changing business needs as well as new requirements and emerging trends.

- **Lower costs and save time**
Rework and manual interventions are less common when operational procedures are carried out correctly the first time thanks to accurate and trustworthy data. Time savings and lower labor costs result from this efficiency boost.

- **Boosted productivity**
This refers to the enhancement of an organization's data-related procedures and activities' efficacy and efficiency. It entails streamlining processes, improving data management procedures, and making use of tools and technology to guarantee that data is reliable, easily accessible, and helpful for making well-informed decisions.

- **Improved compliance**
Businesses that uphold strict standards for data quality are also more likely to abide by the rules and legislation governing their sector. This is due to the fact that having complete and accurate data makes it simpler for businesses to comply with reporting regulations and stay out of trouble for not meeting them.

- **More effective customer satisfaction measures**
higher customer satisfaction can result from better data quality. A company can offer a better, more focused customer experience when it has completed and accurate customer data. Usually, this results in higher sales and more devoted customers.

- **Optimizing data quality for future business goals**

To stay ahead of the competition, any business should place a high priority on data quality. Businesses can make decisions that will enable them to prosper in the dynamic marketplace of today if they have access to the right data.

- b) Briefly describe at least five issues MUGANGA Health care should know that will impact on the management of organizational data.**

- The amount of data being generated in information systems is growing at a phenomenal rate. Hence, they should know how to deal with big data.
- 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. It is imperative that the storage should be larger to be able to accommodate larger data sets.
- Data is collected by many groups within in the organization using different methods and technology. Hence, they should train many employees how to collect data using different tools.
- Data is stored using different servers, systems, databases and formats. There should be experts who have knowledge to manage the databases and the servers at large.
- Only a small fraction of an organization’s data is appropriate for aiding any specific decision. Skills are needed on how to extract the needed data.
- An increasing amount of external data needs to be considered when making decisions. So as to make informed decision that is not biased.
- Data security, quality, and integrity are critical issues for those managing organizational data. Security is very key as hackers could hack the servers to illegally access data. The health information is also very sensitive and thus there is need of high integrity and confidentiality.

END OF MARKING GUIDE AND MODEL ANSWERS