

---

---

**CERTIFIED PUBLIC ACCOUNTANT**  
**LEVEL 2 EXAMINATIONS**  
**F2.3: INFORMATION SYSTEMS**  
**THURSDAY: 6 DECEMBER 2018**

---

---

**INSTRUCTIONS:**

1. **Time Allowed: 3 hours 15 minutes** (15 minutes reading and 3 hours writing).
2. This examination has **seven** questions and only **five** questions are to be attempted.
3. Marks allocated to each question are shown at the end of the question.
4. Show all your workings

## QUESTION ONE

Rabox Technologies is an Information Technology (IT) firm in Rwanda which has been out sourced by Kigali National Social Security Fund (KNSSF) to help in data processing. Owing to the new appointment, the Manager of Rabox Technologies, Mr. Hatega, would like to rebuild the entire infrastructure system of the firm in order to meet the demands of their client. He would like to purchase hardware, software and other equipment needed to set up the IT infrastructure.

Aware that the use of computers has evolved to the extent that some computer systems have become more specialized in their application and use, now that KNSSF needs high speed processing of data, the manager wishes to consider the different classifications of computer systems by process before purchasing the new computers systems.

Additionally, Mr. Hatega is wondering what issues to deal with related to infrastructure management in order to provide balanced set of computer services to his client and the challenges that come along with creating and maintaining a comprehensive IT infrastructure.

You have been hired as a consultant to help Mr. Hatega gain a deeper understanding of hardware, computer systems and infrastructure management.

### REQUIRED:

In a presentation to Mr. Hatega:

- (a) Explain the meaning of a computer system. **(2 Marks)**
- (b) Describe the importance of the **three** computer classifications by process. **(6 Marks)**
- (c) Point out any **three** issues Mr. Hatega has to deal with in order to effectively manage the new infrastructure. **(6 Marks)**
- (d) Explain any three challenges Mr. Hatega is likely to face while creating and maintaining a comprehensive IT infrastructure. **(6 Marks)**

**(Total 20 Marks)**

## QUESTION TWO

Ngoma Technical Institute (NTI) is a training institute of higher education in the Eastern Province of Rwanda. It had a file cabinet database for managing their records.

With the application of information technology in Rwanda, NTI decided to adopt the use of a computerized database and hired database developers to do the job. The developed computerized database works but at times it outputs errors. Much as the developed database outputs errors, it came with a number of advantages for NTI.

The type of data stored in the computerized database of NTI ranges from staff information to students' information and materials, such as a catalog of books and movies in the library and items in the store.

### REQUIRED:

- (a) Define the following terms as used by NTI:
  - (i) Computerised database (2 Marks)
  - (ii) File cabinet database (2 Marks)
- (b) Suggest any **four** possible reasons to explain why the computerized database of NTI works with error. (8 Marks)
- (c) Explain any **four** advantages NTI is realizing from the use of the computerised database. (8 Marks)

**(Total 20 Marks)**

## QUESTION THREE

Decisions and the use of information in decision making are vital in every organizational setting. Information technology supports decisions in organizations for planning, control and management with the help of decision support systems (DSS).

Byumba Farmers' Cooperative (BFC) in the Northern Province of Rwanda embraced the use of DSS in order to increase productivity and realise their vision of being model farmers in Rwanda.

DSS have common characteristics and are categorized differently depending on the types of processing of data and information involved and the types of decisions made. They also have different components. BFC is enjoying a number of benefits with the use of DSS.

**REQUIRED:**

- (a) Explain any **three** characteristics of the DSS used by BFC to realise her vision of being model farmers in Rwanda. **(6 Marks)**
- (b) Discuss **four** benefits BFC is realizing from the use of a DSS. **(8 Marks)**
- (c) Explain the functions of the **three** main components of Byumba Farmers' Cooperative DSS. **(6 Marks)**

**(Total 20 Marks)**

**QUESTION FOUR**

Electronic commerce (E-commerce) has become the trend of doing business online as a result of easy accessibility to the Internet in Rwanda. This, however, is being over taken by M-commerce with the increase in use of mobile devices like smart phones. M-commerce has greatly impacted on the consumer retailing habits and has increased the use of cloud computing technology in doing business online.

**REQUIRED:**

- (a) Define the terms below as used in the scenario:
  - (i) E-commerce **(2 Marks)**
  - (ii) M-commerce **(2 Marks)**
  - (iii) Cloud computing technology **(2 Marks)**
- (b) Discuss any **four** ways M-commerce has impacted consumer retailing habits in Rwanda. **(8 Marks)**
- (c) Explain any **three** benefits of using cloud computing technology to the Rwandese who are utilizing M-commerce. **(6 Marks)**

**(Total 20 Marks)**

**QUESTION FIVE**

Gashenyi High School (GHS) established in 1889 and located in Huye in the Southern province of Rwanda, is one of the oldest church-founded schools. The administrators of the school wish to change from the traditional way of teaching to a blended learning system. They have tasked the information technology (IT) department to develop a system that will support the blended learning. Blended learning will be able to combine digital content and activity face-to-face content and activity. This is driven by the changes already happening in higher institutions of learning and the need to prepare the learners for the 21<sup>st</sup> Century workplace.

The administrators of GHS wish to do different types of analyses during the feasibility study so that they ascertain whether this is a worthwhile venture. This is an extremely important stage in project management.

The administrators are also aware that the change to blended learning might challenge students, teachers and other stakeholders involved. Therefore, they have to think about the requirements needed for effective change management.

You have been approached as an expert to provide technical advice.

**REQUIRED:**

- (a) Discuss to the administrators of GHS any **two** benefits of conducting a feasibility study. (4 Marks)
- (b) Explain any **four** analyses that the administrators of GHS should consider in their feasibility study. (8 Marks)
- (c) Discuss to the administrators of GHS any **four** change management requirements they should consider for successful implementation of the blended learning system. (8 Marks)

**(Total 20 Marks)**

**QUESTION SIX**

Over the years, a number of development methodologies have evolved, the systems development life cycle (SDLC) being one of them. The information technology (IT) manager of Qura Firm Engineering recently followed all the steps of the SDLC to come up with their firm's Management Information System. Each stage they followed had outputs in terms of deliverables and information technology related professionals who took an objective role.

Whereas the SDLC is a step by step process which is easy to follow, the IT manager still experienced some challenges while building the firm's management information system.

**REQUIRED:**

- (a) Explain the purpose of any **four** stages of the SDLC that were used by Qura Firm Engineering. (8 Marks)
- (b) Identify and explain the role of any **three** IT professionals who took an objective role in the development of the firm's management information system. (6 Marks)
- (c) Describe any **three** challenges the IT manager may have faced during the building of the firm's Management Information System. (6 Marks)

**(Total 20 Marks)**

## QUESTION SEVEN

Rwamagana Boys Company (RBC) is a business organization trading in a variety of merchandise with branches across Rwanda. To realize their dream of being the best traders of various merchandise across the country, they had to fully digitalize all their business processes. This required them to be both computer literate and information systems literate. In addition to the digitalization, RBC had to utilize the Internet and internet technologies available in the country.

### REQUIRED:

- (a) Explain the terminologies below as used in the scenario:
    - (i) Digitalization (2 Marks)
    - (ii) Internet (2 Marks)
    - (iii) Computer literate (2 Marks)
    - (iv) Information systems literate (2 Marks)
    - (v) Internet technologies (2 Marks)
  - (b) Suggest **three** reasons to explain why RBC found it important to digitalize all its business processes. (6 Marks)
  - (c) Explain **four** ways in which the use of the Internet has affected the way RBC conducts its business after digitalization. (4 Marks)
- (Total 20 Marks)**



