
CERTIFIED ACCOUNTING TECHNICIAN

LEVEL 2 EXAMINATIONS

L2.2: INFORMATION SYSTEMS

MONDAY: 3 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

Many business organisations in Rwanda now use computer systems to transact business because of the numerous benefits they derive therefrom.

A computer system is made up of a number of components which include the motherboard. Numerous major components crucial to the functioning of the computer are attached to the motherboard. These include the processor, memory (read only memory (ROM) and random access memory (RAM)), expansion slots, parallel and serial communication ports.

These parts use electricity from a power supply unit (PSU). The computer system may or may not be connected to an uninterrupted power supply (UPS).

The ministry in-charge of information and technology in Rwanda has organised a workshop to educate business organisations on the above information to allow them use computers efficiently and effectively. You have been invited as one of the facilitators at that workshop.

REQUIRED:

- (a) Describe to the participants any **three** components of a computer system referred to in the scenario. **(6 Marks)**
- (b) Distinguish between the following terms as used in information technology:
- (i) RAM from ROM **(2 Marks)**
 - (ii) PSU from UPS **(2 Marks)**
 - (iii) Parallel port from serial port **(2 Marks)**
- (c) Discuss any **four** reasons why business organisations in Rwanda use computers to facilitate business transactions. **(8 Marks)**
- (Total 20 Marks)**

QUESTION TWO

Ndayisenge Marketing Group (NMG) is planning to improve their computer and phone software to enable efficient operations in the organisation.

After consulting MK Computers Limited, NMG was advised to first install an operating system which is applicable to the nature of their work and also suits their budget. MK Computers Limited gave them a catalogue describing the different families of operating systems and their prices.

Additionally MK Computers Limited advised NMG to ensure they employ different strategies to ensure that all the software installed is properly maintained so that they function properly to help NMG achieve their objective.

REQUIRED:

- (a) Explain any **five** reasons why operating systems are important for NMG. **(10 Marks)**
 - (b) Identify **two** common families of computer operating systems software the management of NMG can use to achieve their objective. **(2 Marks)**
 - (c) Explain any **four** maintenance strategies that can be deployed by NMG to ensure that software is effectively functioning. **(8 Marks)**
- (Total 20 Marks)**

QUESTION THREE

Akanto and Giramata are business partners owning a successful car importing business based in Kicukiro. They intend to embark on online sale of cars to customers in and around Rwanda. Therefore, they would like to develop an application software to support their business. The application to support this business goal should enable customers view the cars, their prices, place orders, offer discount to loyal customers and also permit online payment.

Giramata has consulted Zalabeke, a systems analyst who has recommended a feasibility study before any development of the application can be made. Zalabeke explained that feasibility study is a vital step in the system development life cycle (SDLC). Zalabeke has further proposed prototyping as an alternative to SDLC.

However, Akanto feared that Zalabeke and his team lack the necessary competence to handle the application development project and suggested that it would be better to outsource the development process of the application.

REQUIRED:

- (a) Describe any **three** types of feasibility study that may be conducted in software development as recommended by Zalabeke and explain why each of them is vital. **(6 Marks)**
 - (b) Discuss **three** reasons to justify Akanto's suggestion to Giramata. **(6 Marks)**
 - (c) Briefly describe the four-step model prototyping process to the partners to help them take an appropriate decision. **(8 Marks)**
- (Total 20 Marks)**

QUESTION FOUR

Data Plex Rwanda Limited (DPRL) is a private information technology company whose mandate is to offer services like ensuring quality assurance, quality control and systems security and control to different organisations in order to protect their information resources.

DPRL ensures information security and business continuity by developing for organisations data recovery plans, risk management plans among others.

DPRL also provides tools for managing user identities, preventing unauthorized access to systems and data, ensuring system availability, and ensuring software quality.

The company has organized a one day workshop to sensitize organizations about the potential benefits of those services.

You have been contacted as one of the presenters.

REQUIRED:

Prepare a notes for the workshop participants:

- (a) Educating them about any **two** benefits of a data recovery plan. **(4 Marks)**
 - (b) Explaining the difference between quality control and quality assurance as used in the scenario. **(4 Marks)**
 - (c) Describing any **two** techniques used to prevent unauthorized access to organizations' systems and data. **(4 Marks)**
 - (d) Discussing any **four** benefits of the system security and control services to organisations. **(8 Marks)**
- (Total 20 Marks)**

QUESTION FIVE

A new information technology institute has been set up in Nyamagabe to provide training in database management. Bwase Supermarket nominated Ndabarinzi to undergo a one week certificate course in database development.

On day one, Ndabarinzi learnt about databases and database management systems (DBMS). Ndabarinzi remembers the facilitator mentioning components of a DBMS to include users among others and the roles of database administrator as a database user were enumerated.

The second day was about relational databases. Database terminologies such as records, fields, foreign key and integrity were introduced and explained:
Ndabarinzi is expected to write a brief report to the manager of Bwase Supermarket explaining what has been learnt so far but has forgotten everything. He consults you to help him prepare the report.

REQUIRED:

Assume you were Ndabarinzi:

- (a) Clearly distinguish between database and DBMS to the manager of Bwase Supermarket. **(4 Marks)**
 - (b) Apart from users, describe to the manager any other **three** parts of a DBMS. **(6 Marks)**
 - (c) If Bwase supermarket decides to set up a DBMS and appoint you as a database administrator, explain any **three** roles you will play in that position. **(6 Marks)**
 - (d) Explain the **four** terminologies about relational databases learnt in day two. **(4 Marks)**
- (Total 20 Marks)**

QUESTION SIX

Rwamuza and Sons Ltd (RSL) have an office space arrangement and their offices are located on the 2nd floor of Rwamuza Mall. They wish to lay an appropriate network topology and also ensure they have access to the Internet either through wireless communication channels or physical communication channels.

REQUIRED:

- (a) Explain to RSL the **two** communication channels stated above. **(4 Marks)**
- (b) Introduction of the Internet to the network will require internet telecommunication components.

REQUIRED:

- Describe any **four** of the above components to the management of RSL. **(8 Marks)**
 - (c) With the help of illustrations, explain any **two** network topologies that RSL can use to network their offices. **(8 Marks)**
- (Total 20 Marks)**

QUESTION SEVEN

Electronic commerce (e-commerce) and expert systems have now become the cheapest way of conducting international business in Rwanda. This is because it does not only eliminate costs of travel but also makes transactions faster.

E-commerce involves use of computers or mobile devices to transact business especially payment for goods electronically. ABC Ltd has taken advantage of integrated e-commerce and expert systems because of their numerous benefits.

REQUIRED:

- (a) Describe any **four** methods ABC can use to effect electronic-payments. **(8 Marks)**
 - (b) (i) Describe to them any **three** components of expert systems. **(6 Marks)**
 - (ii) Explain any **three** benefits of expert systems in processing of business transactions. **(6 Marks)**
- (Total 20 Marks)**



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