

CERTIFIED ACCOUNTING TECHNICIAN

LEVEL 1 EXAMINATIONS

L2.2: INFORMATION SYSTEMS

MONDAY: 28 NOVEMBER 2016

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. All iCPAR Examination rules and regulations apply

Attempt any five questions

QUESTION ONE

Digital (R) Limited is a consulting firm operating in Rwanda with its head office in Gasabo District, in Kigali. The company offers information communication technology (ICT) solutions and services mainly to the Government of Rwanda through conducting awareness sessions and promoting the use of ICT as well as equipping public servants with ICT skills which, it is believed, will be used to understand and manage the planned microfinance information system.

Recently, the company won a contract to train the staff of Kayonza Credit, a microfinance institution based upcountry with various branches, in different ICT skills. You are the lead ICT consultant on this project.

REQUIRED:

- (a) Explain the following terms:
 - (i) Computer (2 Marks)
 - (ii) System (2 Marks)
 - (iii) Information system. (2 Marks)
- (b) Explain to the staff of Kayonza Credit the difference between computer literacy and information system literacy. (4 Marks)
- (c) Explain how the introduction of internet technology may impact on Kayonza Credit's operations. (5 Marks)
- (d) Explain the challenges that are likely to be faced in building and using an information system in a microfinance institution. (5 Marks)

(Total 20 Marks)

QUESTION TWO

Gasagara Security Company Limited (GSCL) is seeking for a way to automatically update its information in relation to its suppliers, security, assets, employees and customers for easy monitoring. The company was advised to adopt database technology that would provide them with a database management system (DBMS) which would help in organising, centralising the data and minimising data redundancy in the organisation's information system. GSCL has recruited you as their database manager to take up the project.

REQUIRED:

- (a) Explain to the management of GSCL:
 - (i) Difference between a database and a database management system. (2 Marks)
 - (ii) Three types of databases that GSCL may consider acquiring to manage its operations. (6 Marks)
- (b) Discuss the three components of a database management system that would help GSCL achieve its objective. (6 Marks)
- (c) Advise GSCL on any three considerations for database designing. (6 Marks)

(Total 20 Marks)

QUESTION THREE

Gasabo Software Developers Limited (GSDL) was formed by a group of young entrepreneurs who have specialised in building systems for organisations. The shareholders are certified software engineers acquainted with contemporary software platform trends like open source software, Java, Enterprises software, web services and service-oriented architecture and software outsourcing in order to come up with portable application packages. However, these platforms do not enable the developers provide adequate solutions to the users.

REQUIRED:

- (a) Explain the:
- (i) Term software development. **(2 Marks)**
 - (ii) contemporary software platforms mentioned above and the reasons for their adoption by GSDL. **(10 Marks)**
- (b) Describe the following application software programs which can be modified by GSDL, and give an example of each.
- (i) Web browser. **(2 Marks)**
 - (ii) Spreadsheets. **(2 Marks)**
 - (iii) Presentation software. **(2 Marks)**
 - (iv) Desktop publishing. **(2 Marks)**
- (Total 20 Marks)**

QUESTION FOUR

The Association of the Old Students of Muhanga Citizen High School (OSMCHS), in their last Alumni meeting, resolved to improve the association's operations through automation and be able to link the geographically dispersed former students of the school. This followed the appointment of young, dynamic and information technology (IT) exposed members to the governing committee seeking for an information system (IS) solution.

The association currently maintains a manual register and accounting system, a series of receipt books, a savings account in one of the local banks and a few monuments stored in a cabinet in the Deputy Headmaster's office.

In line with the decision of the association referred to above, the chairperson has approached you to actualize the desire of the association by automating all its operations.

REQUIRED:

- (a) Discuss any four major system development life cycle (SDLC) steps required for the development of the suggested information system. **(4 Marks)**
- (b) Explain any other four ways of acquiring an information system, other than SDLC. **(4 Marks)**
- (c) Describe any three core activities that are executed during the implementation stage of the SDLC. **(6 Marks)**
- (d) Describe three possible challenges that may be faced in setting up an information system for OSMCHS. **(6 Marks)**
- (Total 20 Marks)**

QUESTION FIVE

Information system security refers to policies, procedures and technical measures used to ensure proper and continuous performance of an information system. Information system security can be implemented through an array of techniques and tools to safeguard computer hardware, software, communication networks, information system users and data. Failure to institute proper security controls may render information systems vulnerable.

REQUIRED:

- (a) Identify any four objectives of having adequate security control systems for information systems. **(4 Marks)**
- (b) Explain any four preventive measures that would be employed to protect system information systems. **(8 Marks)**
- (c) Discuss any four challenges encountered during the implementation of system security and controls in the information system. **(8 Marks)**
- (Total 20 Marks)**

QUESTION SIX

Information Technology (IT) infrastructure provide a life support for application systems executed or used by organisations. This therefore has to be managed very well for effectiveness otherwise the organisations will not realise the full benefits of their investment in IT.

You have been appointed as an IT manager for Huye Commercial Bank.

REQUIRED:

- (a) Explain the following terms:
 - (i) Information technology infrastructure. (2 Marks)
 - (ii) Information technology infrastructure management. (2 Marks)
- (b) Discuss any three challenges to IT infrastructure management and for each challenge suggest a suitable solution. (12 Marks)
- (c) The hardware assets of Huye Commercial Bank have of recent not been functioning as expected.

REQUIRED:

Explain any four possible causes of the malfunctioning referred to above. (4 Marks)

(Total 20 Marks)

QUESTION SEVEN

Nyamasheke Tea Company (Rwanda) Limited NTC (R) concluded their corporate strategic plan period in June 2016 with noticeable achievements but also with some un-completed projects. Recently, the board of directors of NTC (R) contracted your consultancy firm to evaluate the company's performance and present a report in the next annual general meeting (AGM) due later in December, 2016.

NTC (R) has been involved in tea growing (on plantations), harvesting, processing, marketing and exporting tea to the Nairobi tea market for the last 20 years. NTC (R)'s activities are supported by information systems installed in its various departments including production, research, sales and marketing.

You have concluded the evaluation exercise and are preparing a report to be presented at the AGM scheduled to take place later this month.

REQUIRED:

As you prepare to make a presentation to the AGM:

- (a) Describe the following information systems as applied in the production, research, sales and marketing departments of NTC (R):
 - (i) Executive Support System (ESS) (2 Marks)
 - (ii) Knowledge Management Systems (KMS) (2 Marks)
 - (iii) Transaction Processing System (TPS) (2 Marks)
 - (iv) Office Automation Systems (OAS) (2 Marks)
 - (v) Expert Systems (ES) (2 Marks)
- (b) Describe any five activities under the transaction processing systems in NTC (R). (10 Marks)

(Total 20 Marks)

End of question paper