

SECTION A [40 MARKS]

Attempt **ALL** the Questions in this Section.

Question 1

The Government of Uganda introduced the Parish Development Model (PDM) as a result of a number of reviews of Government's planning, implementation and results monitoring mechanisms such as; a. the NDP I End-of-Term Evaluation and the NDP II Mid-Term Review that recommended its adoption. The evaluations identified the strategic role of a Parish in improving service delivery, and strengthening production, productivity and value addition for social economic transformation and realization of NDP results. In line with this, the NDP III (Section 10, page 10 and 11) adopted the PDM as a vehicle for increasing household income and welfare. b. The comprehensive evaluation of the Decentralization Policy commissioned by the National Planning Authority (NPA), etc.

The PDM is therefore Government of Uganda's approach that delivers a package of services entailing creating data systems that constantly feed the whole Government with realtime information concerning various interventions at the Parish level. The data generated and interpreted will improve the understanding of the different and unique characteristics of households across the country and hence provide the basis for the delivery of targeted interventions. PDM also assumes dedicated efforts and investments in the organisation and coordination of farmers at Parish level and other value chain actors through area-based commodity clusters to increase production and productivity that will create sustainable agricultural production.

It's observed that in order to realise delivery of most efficient and effective PDM and successful implementation of all its processes and framework, a National Parish Development Model Information System (PDMIS) should be development. **As a Systems Analysis & Design Specialist, you required to;**

- (a) Briefly explain the relevance of conducting a preliminary investigation during the planning phase of the SDLC? **(4 marks)**
- (b) Identify at least three stakeholders of this PDMIS project **(4 marks)**
- (c) Perform a SWOT Analysis for this system development project **(8 marks)**
- (d) Discuss the levels of feasibility study you would perform in this development project **(8 marks)**
- (e) Define the roles of a Systems Analyst in Information Systems Projects **(6 marks)**
- (f) Recommend an appropriated system development methodology with reasons **(6 marks)**
- (g) Explain what the Functional and Non-Functional Requirements of this system would be **(4 marks)**

SECTION B [60 MARKS]

Attempt **ONLY THREE** Questions in this Section.

Question 2

Study this case study and then answer the related questions

In 1995, the Standish Group published a report titled “The CHAOS Report” after surveying 365 IT executive managers in the United States who managed more than 8,380 IT application projects. The study found that U.S. companies spent more than \$250 billion each year in the early 1990s on approximately 175,000 IT application development projects. Examples of these projects included creating a new database for a state department of motor vehicles, developing a new system for car rental and hotel reservations, and implementing a client-server architecture for the banking industry. The study reported that the overall success rate of IT projects was only 16.2 percent. The surveyors defined success as meeting project goals on time and on budget. The study also found that more than 31 percent of IT projects were canceled before completion, costing U.S. companies and government agencies more than \$81 billion. The study authors were adamant about the need for better project management in the IT industry. They explained, “Software development projects are in chaos, and we can no longer imitate the three monkeys hear no failures, see no failures, speak no failures.”

In another large study, PricewaterhouseCoopers surveyed 200 companies from 30 different countries about their project management maturity and found that over half of all projects fail. The study also found that only 2.5 percent of corporations consistently meet their targets for scope, time, and cost goals for all types of projects. Later studies by the Standish Group have recorded some improvement in the success rates of IT projects:

- The number of successful IT projects more than doubled, from 16 percent in 1994 to 39 percent in 2012.
- The number of failed projects decreased from 31 percent in 1994 to 18 percent in 2012.

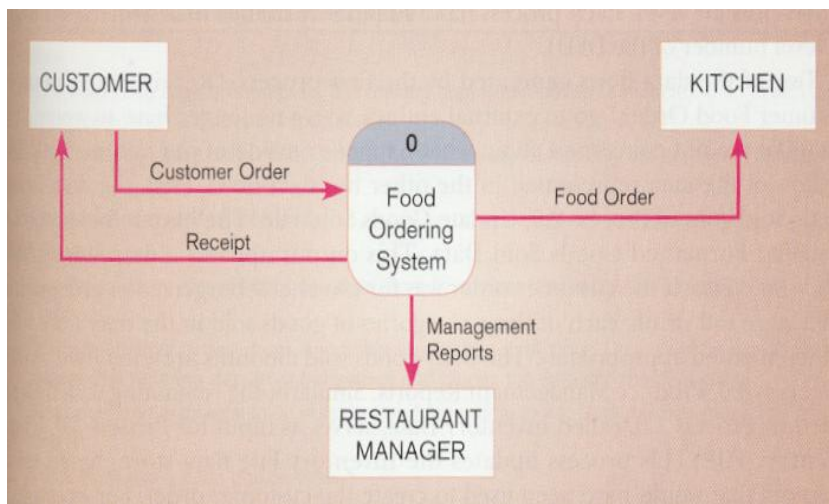
The increase in success is a result of several factors, including looking at the entire project environment of processes, methods, skills, costs, tools, decisions, optimization, internal and external influences, and team chemistry. Advances in the understanding of the skills needed to be a good executive sponsor have proved to be very valuable for increasing success rates. Increases in project management as a profession and trained project management professionals can be tied directly to increases in success rates. The 2013 CHAOS study also compared small projects (under \$1 million) with large projects (over \$10 million). Not surprisingly, the success rate for small projects was much higher than for large projects 76 percent versus 10 percent. It is easier to manage smaller projects, and researchers suggest that organizations strive to break large projects into a sequence of smaller ones in a process they call optimization.

SYSTEMS ANALYSIS AND DESIGN

- (a) According to this study discuss thoroughly the causes of failures of IT projects
(6 marks)
- (b) Why is the success rate of small projects higher than that of bigger projects.
(6 marks)
- (c) Discuss why the Authors of the CHAOS report were “adamant about the need for better project management in the IT industry”
(4 marks)
- (d) Other than the reasons given in the text what could be the other reasons why the success rate of projects executed in later years succeeded.
(4 marks)

Question 3

- (a) Using an organization with which you are familiar, prepare the Terms of Reference for a project to develop a new information system of your choice
(5 marks)
- (b) Study the diagram and answer the questions that follow.



- (i) At what level of DFD is the diagram above
(2 marks)
- (ii) Identify the data flows in the diagram.
(3 marks)
- (iii) Derive the next level data Flow diagram from the above DFD
(10 marks)

Question 4

In Systems Analysis and Design, Requirements Analysis Phase begins when the previous phase objectives have been achieved. Documentation related to user requirements from the Concept Development Phase and the Planning Phase is used as the basis for further user needs analysis and the development of detailed requirements. Successful completion of the Requirements Analysis Phase should comprise of Definition of approved requirements, Creation of the Functional, Requirements Document and Requirements Traceability Matrix, Development of planned test activities, Performance of needed procurement activities, Approval to progress to the Design Phase

The purpose of the Requirements Analysis Phase is therefore to transform the needs and high-level requirements specified in earlier phases into unambiguous (measurable and testable), traceable, complete, consistent, and stakeholder-approved requirements.

SYSTEMS ANALYSIS AND DESIGN

During the Requirements Analysis Phase, the agency will conduct any procurement needed for the project.

- (a) Why is systems analysis considered one of the most crucial phases of the system development life cycle? **(2 marks)**
- (b) Why is documentation ideal during the system development process? **(2 marks)**
- (c) What fact-finding techniques are ideal during the analysis of the system development life cycle? **(4 marks)**
- (d) Describe the following terms as used in Systems Analysis and Design **(2 marks @)**
 - (i) Requirements Elicitation,
 - (ii) Requirements Specification,
 - (iii) Requirements Validation.
- (e) Describe the characteristics of high-quality requirements specifications **(4 marks)**
- (f) Distinguish between functional and non-functional requirements **(2 marks)**

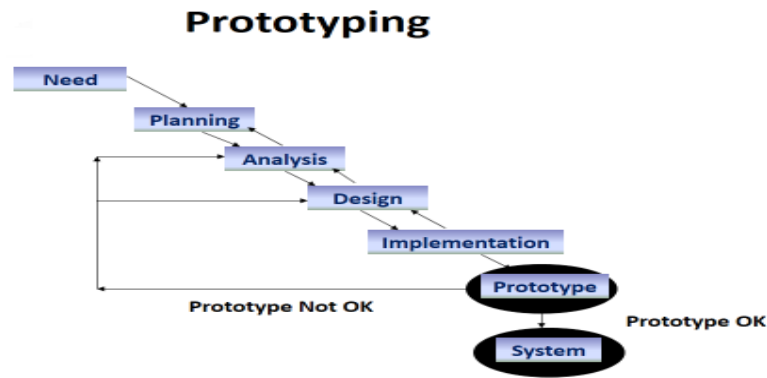
Question 5

Software Development Life Cycle is the application of standard business practices to building software applications. It's typically divided into six to eight steps. Some Systems Analysts can combine, split, or omit steps, depending on the project's scope. SDLC is a way to measure and improve the development process. It allows a fine-grain analysis of each step of the process. This, in turn, helps companies maximize efficiency at each stage. Companies must reduce costs, deliver software faster, and meet or exceed their customers' needs. SDLC helps achieve these goals by identifying inefficiencies and higher costs and fixing them to run smoothly. The SDLC simply outlines each task required to put together a software application, this helps to reduce waste and increase the efficiency of the development process. Monitoring also ensures the project stays on track, and continues to be a feasible investment for the company. Many companies will subdivide these steps into smaller units. Other steps can merge with each other. The Testing phase can run concurrently with the Development phase, since developers need to fix errors that occur during testing.

- (a) With examples, clearly discuss the 7 stages SDLC? **(14 marks)**
- (b) What is the major goal of software testing? **(2 marks)**
- (c) Differentiate between Unit and Integration Testing. **(4 marks)**

Question 6

- (a) With the aid of the diagram, clearly explain how prototyping model works and why you would prefer it over the waterfall model. **(10 marks)**



- (b) What according to you are the characteristics of a software of good quality? **(4 marks)**
- (c) Discuss the parameters used to determine the success of a Software Development Project **(6 marks)**

Question 7

The Government of Uganda, through Ministry of ICT and National Guidance established the National ICT Innovation Hub primarily to establish an environment for ICT innovators facing challenges of workspace and internet connectivity. UICT students' group of innovators have presented a system development concept to build an Electronic Medical Diagnostic Systems Using Artificial Intelligence. Assuming you are selected as a System Analyst to oversee the entire system development process;

- (a) What would be your roles/obligations? **(6 marks)**
- (b) What would be the characteristics of a good Systems Analyst? **(4 marks)**
- (c) What major m types of feasibility how you use to measure how suitable system development will be to the government of Uganda **(6 marks)**
- (d) What factors would you consider while selecting an appropriate software development methodology? **(4 marks)**

END