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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR
FIRST YEAR, SECOND SEMESTER EXAMINATION
FOR THE DIPLOMA IN INFORMATION & COMMUNICATION TECHNOLOGY
DIT 1005 – SYSTEM ANALYSIS AND DESIGN

Date: 5TH December 2024
Time: 8:30AM – 10:30AM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Mary used waterfall model to develop an information system. Explain **THREE** characteristics of this methodology. (3 Marks)
- b) Explain **THREE** roles of a system analyst in a mobile application development company (3 Marks)
- c) A system analyst is expected to prepare various documents during the process of system development. Describe **SIX** attributes of a good system documentation. (6 Marks)
- d) Kiriri University uses the following procedure to process an application for admission. An application is received and the system checks whether an application fee has been paid. If paid, the system checks whether the course applied for has a vacancy. If vacancy is available and fee is paid, an admission letter is generated, else a message to pay is sent to the application. Otherwise, a regret letter is generated. Draw a decision tree to represent this logic. (6 Marks)
- e) A certain company has opted to train its users before the new system is implemented. Explain **THREE** benefits of this training to the company. (6 Marks)
- f) ABC company intends to acquire an information system using the off the shelf method. Explain **THREE** benefits of this method of acquisition. (6 Marks)

QUESTION TWO (20 MARKS)

- a) Describe **THREE** reasons that contribute to late completion and delivery of a project. (6 Marks)
- b) Read the Case study below answer the questions that follow
 - Buses come to a garage for repairs.
 - A mechanic and helper perform the repair, record the reason for the repair and record the total cost of all parts used on a Shop Repair Order.
 - Information on labor, parts and repair outcome is used for billing by the Accounting Department, parts monitoring is done by the inventory management computer system and a performance review by the supervisor.
 - i) List any four external entities (4 Marks)
 - ii) What are the two main processes with regard to the system? (2 Marks)
 - iii) Draw the Bus Garage context diagram. (4 Marks)
- c) Discuss the types of maintenance that could be carried out on the new system. (4 Marks)

QUESTION THREE (20 MARKS)

- a) You have been tasked to test a software before implementation. Discuss any **FOUR** types of testing that you will perform on the software. (8 Marks)
- b) Explain the major activities carried out in the following phases of system development
- i) Feasibility study (2 Marks)
 - ii) Requirements analysis- (2 Marks)
- c) A college offers correspondence courses to students. Each course lasts 20 weeks and is based on a weekly study module and progress test. At the end of the course students sit an invigilated examination. The college Registrar deals with enquiries and applications, and students applying who have sufficient qualifications are asked to register by completing and submitting an application form. After approval by the Academic Director, the application form is returned to the Registrar who creates a student file. The Accounts department receive the application form and using information from the student file creates an invoice that is sent to the student. Payments made are registered on the invoice file. The first batch of student material and tests is issued from the library only to students who have paid fees (this information is taken from the invoice file). Draw a DFD diagram to represent this scenario. (8 Marks)

QUESTION FOUR (20 MARKS)

- a) Information systems can provide many benefits to a business. Discuss any **TWO** of such benefits (4 Marks)
- b) Anna works as an analyst in a small- software development firm in Kenya. The firm develops software that manages university examination process. George wants to quickly develop a user interface to demonstrate to a potential client how the final system will appear and function. Outline six principles that can guide Ann while designing the user interface. (6 Marks)
- c) Describe an ERD diagram. (2 Marks)
- d) It is possible for the introduction of new or upgraded computer systems to encounter resentment and opposition from existing employees. This may take many forms from outright opposition to active hostility toward the new system during fact finding interviews.
- i) Outline **FOUR** reasons for employees to react in this manner. (4 Marks)
 - ii) Outline **FOUR** measures that can be taken by the systems analyst to alleviate this resistance. (4 Marks)

QUESTION FIVE (20 MARKS)

- a) An information system is a set of components used to collect, process, store and disseminate information. Describe any **TWO** types of information systems. (4 Marks)
- b) A system analyst requires special skills to analyze, design and manage an information system effectively. Explain **THREE** main categories of skills that a system analyst is expected to have. (6 Marks)
- c) A fast-food organization has expanded the number of outlets around a city. At the moment the outlets use conventional cash tills. The organization would like to implement a Point-Of-Sale (POS) system in all its outlets with linkages to a centralized computer. Assume you are the organization's systems analyst and you have been asked to assist in the conversion process from the existing system to the new one:

Required

- i) Recommend the most suitable changeover method for the new system and provide **TWO** reasons to support your choice. (6 Marks)
- ii) Discuss **FOUR** activities to be carried out during the implementation process of the new system. (4 Marks)