

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF SCIENCE COMPUTER SCIENCE**

**COSC 130: SYSTEM ANALYSIS AND DESIGN**

**STREAMS: BSC (COSC) Y2S2**

**TIME: 2 HOURS**

**DAY/DATE: WEDNESDAY 08/04/2020**

**11.30 AM – 1.30 PM**

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**INSTRUCTIONS:**

**ANSWER QUESTIONS ONE AND ANY OTHER TWO:**

**SECTION A:**

**QUESTION ONE: 30 MARKS**

- a) Describe the pros and cons of traditional approach to system analysis. (4 marks)
- b) What is the role of software maintenance in system development? Explain various types of software maintenance and their roles. (3 marks)
- c) Explain the purpose of a feasibility report, and when in the system development life cycle, it should be produced. (3 marks)
- d) Define system methodology? Explain the b-Model life cycle in detail. Also illustrate its strengths and drawbacks (3 marks)
- e) An Online State Library System (OSLS) is a library subsystem that provides people of the community with access to borrow e-books and e-videos online at their convenient time. On demand, e-videos and e-books are chargeable. Users of the systems are Community people, Library Staff, Credit Payment Service and PayPal. Community people uses OSLS to login into the system, view items, borrow books and/or videos, and complete checkout; Library staff uses OSLS to view items, login and complete check out; Credit Payment Service and PayPal use OSLS to complete check out. Represent this situation with a Use

Case diagram (3 marks)

f) Describe the four values of agile systems development methodologies (3 marks)

g) List at least THREE advantages of on-site observation (3 marks)

h) Distinguish between:

i). Interaction & interdependence (2 marks)

ii. Physical & Abstract Systems (2 marks)

iii. Open & Closed systems (2marks)

iv. Schematic & static systems models (2 marks)

## SECTION B: ANSWER ANY OTHER TWO

### QUESTION TWO: 20 MARKS

a). with the aid of appropriate examples, distinguish between functional and non-functional requirements (4 marks)

b). Explain the difference between verification and validation. Give an example of a technique that can be used for each? (4 marks)

c) Assess the advantages and disadvantages in each of these software acquisition methods:

(i) Purchasing and customizing standard software (2marks)

(ii) Commissioning a software house (2marks)

(ii) Writing in-house programs (2marks)

d). Outline four reasons why an organization would undertake a system upgrade project. (4 marks)

e) Explain current technology drivers that influence information systems development (2 marks)

### QUESTION THREE: 20 MARKS

a). What is testing? Discuss why testing is needed. Differentiate integration testing, system testing and acceptance testing? (6 marks)

b). Discuss Joint Application Design (JAD) in Information Gathering and Conditions That Support the Use of JAD (3 marks)

c). Explain the working PARIS Model. (3 marks)

d) What are the typical stakeholders in an information systems? What are their roles? (4 marks).

- f) Winston University College intends to put in place a new library information system because improved student's population. They have consulted you for expert views and advises. Your expert advice to them is to outsource the Information system. Explain to them reasons for outsourcing and potential risk that might be encountered by the university while outsourcing (4 marks)

**QUESTION FOUR: 20 MARKS**

- a). Describe the general principals associated with structured systems analysis. (4 marks)

- b). Explain functional Decomposition in relation to information systems (3 marks)

- c). What is prototyping? Describe the development procedure of the following types of prototypes: -

- i) Operational prototypes
- ii) Discardable prototypes (4 marks)

- d) 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 conversation process from the existing system to the new one:

- (i) evaluate the change-over options that are available and recommend the most suitable method for the new system (6 marks)

- (ii) construct a sequential check list for the activities to be carried out during the implementation process. (3 Marks)

**QUESTION FIVE: 20 MARKS**

- a) Draw context diagram and data flow diagrams for a distance education university described in the following narrative. Students send in an application form containing their personal details, and their desired course. The university checks that the course is available and that the student has necessary academic qualifications. If the course is available the student is enrolled in the course, and the university confirms the enrolment by sending a confirmation letter to the student. If the course is unavailable the student is sent a rejection letter. (7 marks)

- b) There are two ways of debugging program software: bottom-up and top-down. How do they differ? (4 marks)
- c) Ahadi Kenya limited Company would like to shortlist candidates for a systems analysts position. This is position reporting to the IT Manager and attracts a good remuneration/salary.
- i) Discuss why you are the best candidate for the job. (3 marks)
  - ii) Assuming that you are hired for the job. Prepare an orientation report highlighting some of the expertise you would bring into the company. (4marks)
- d) What the are two main advantages of waterfall model in system development? (2 marks)
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