

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE  
IN COMPUTER SCIENCE**

**COSC 130: SYSTEM ANALYSIS AND DESIGN**

**STREAMS: BSC. COMP. SCI**

**TIME: 2 HOURS**

**DAY/DATE: TUESDAY 30/03/2021**

**8.30 A.M. – 10.30 A.M**

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

**SECTION A**

**QUESTION ONE: 30 MARKS**

- a) Explain why an analyst may provide the management of an organization more than one possible choice of information handling system as the basis for a computer solution, and comment on the factors that could influence the managers when making such a choice. (4 marks)
- b) Describe the testing life cycle in detail (4 marks)
- c) Imagine that you are the Personnel Director of System Telecom. Prepare the terms of reference for a project to develop a new personnel system. (3 marks)
- d) Define system methodology? Explain the b-Model life cycle in detail. Also illustrate its strengths and drawbacks (4 marks)
- e) Describe the advantages and disadvantages of waterfall model and prototype model of system development. (4 marks)

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- f) Briefly explain the four methods of conversion from an existing system to the new system. (4 marks)
- g)
- i) Two common techniques for gathering requirements are interviews and workshops. Choose ONE of these techniques and describe how an analyst would prepare for it and carry it out. (4 marks)
- ii) For the technique you have chosen in part (i) discuss its advantages and disadvantages for requirements gathering. (3 marks)
- iii) Describe the phases of system development life cycle. (4 marks)

### SECTION B

#### QUESTION TWO: 20 MARKS

- a) A company has decided to purchase 'off the shelf' (OTS) software to handle the financial aspects of its business. Describe at least 7 general criteria that should be used to decide which OTS software applications are suitable for the company. (7 marks)
- b) What is the difference between validation and verification? (4 marks)
- c) Discuss briefly the purpose of Sequence Diagrams (3 marks)
- d) Explain the Implementation phase activities in SDLC. Show why they are crucial. (4 marks)
- e) Differentiate between Preliminary and structured design? (2 marks)

#### QUESTION THREE: 20 MARKS

- a). It is possible for systems analysis involved in 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 three reasons for employees to react in this manner. (3 marks)
- (ii) Outline three measures that can be taken by the systems analyst to alleviate this

resistance. (3

marks)

b). Differentiate between a closed and Open systems. (2 marks)

c). Explain the working of PARIS Model. (4 marks)

d). What is a CASE tool and what features would you expect a CASE tool to have? (4

marks)

e). Describe how a CASE tool can help to improve the quality of a system being developed (4

marks)

**QUESTION FOUR: 20 MARKS**

a). Define an information system and describe its components. (4 marks)

b). Explain functional Decomposition in relation to information systems (2 marks)

c). Define the term Feasibility Study. Describe at least four types of feasibility analyses. (5

marks)

d). Explain what is meant by prototyping and why this is used in systems development. (5

marks)

e) Describe the role and responsibilities of the following:

i) Business analysts

ii) Stakeholders (4 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.

(8

marks)

- b) A company has decided to purchase 'off the shelf' (OTS) software to handle the financial aspects of its business. Describe at least 10 general criteria that should be used to decide which OTS software applications are suitable for the company (5 marks)
- c) Compare object-oriented analysis and design with the structured analysis and design. State the activities involved in each of the phases of the object-oriented development life cycle.

(7

marks)

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