



FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY  
DEPARTMENT OF COMPUTER SCIENCE

FIRST SEMESTER 2022/2023 EXAMINATION

**COURSE CODE:** CPT 316  
**COURSE TITLE:** SYSTEM ANALYSIS & DESIGN  
**CREDIT UNITS:** THREE (3)  
**TIME ALLOWED:** 2HRS 20MINUTES  
**COURSE LECTURER(S):** MAL. MUHAMMAD KUDU MUHAMMAD,  
**NUMBER OF QUESTIONS:** SIX (6)  
**NUMBER OF PAGES:** TWO (INCLUDING THIS PAGE)

**INSTRUCTIONS**

- Answer four (4) questions only
- All questions carry equal marks
- Do **not** use red pen
- Please use a clear handwriting
- This exam is closed book, closed notes, closed laptop and closed cell phone
- Please use non-programmable calculators only
- All form of borrowing during this examination is prohibited
- Do not write on your question paper. All rough work should be done on the last page of your answer booklet and duly crossed on submission

**Question 1**

- (a) What is a Central Repository in a CASE Tool? (3 marks)
- (b) Explain concisely the following terms and give their diagrammatic representation.  
(I) Include relationship (II) Extend relationship (III) A merge node (IV) A fork node (V) A final-flow node (VI) An initial node (6 marks + 1 extra for neat diagram)
- (c) State the general guidelines for creating a behavioural state machine. (5 marks)

**Question 2**

- (a) Explain what you understand by "Flow of Event part". (5 marks)
- (b) Give a comprehensive illustration of UML Class Diagram (10 marks)

**Question 3**

- (a) Define the term Unified Modeling Language (3 marks)
- (bi) State the full form of an attribute notation (3 marks)
- (bii) What is the formula for calculating the effort for approach? (2 marks)
- (c) List and explain any five (5) types of CASE Tools. (7 marks)

**Question 4**

- (a) Define CASE tools? (2 marks)
- (b) State six (6) general guidelines for creating activity diagrams. (6 marks)
- (c) Define the following with a well-labeled diagram as example  
(I) Include relationship (II) Exclude relationship (7 marks)

**Question 5**

- (a) What is the difference between Re-Engineering and Reverse Engineering? (5 marks)
- (b) Define the following terms (I) A class (II) An object (III) A state of an object (IV) An event (V) A guard condition (5 marks)
- (c) State five (5) general guidelines for creating use – case descriptions. (5 marks)

**Question 6**

- (a) What is a function point, and how is it used? (3 marks)
- (b) As a software developer, list and explain the phases you will follow to construct an information system and explain them. (2 marks)

**BEST OF LUCK**