



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA**  
**FACULTY OF SCIENCES**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**SEPTEMBER, 2020\_1 EXAMINATION**

**COURSE CODE: CIT703**

**COURSE CREDIT: 3**

**COURSE TITLE: INFORMATION TECHNOLOGY AND SOFTWARE DEVELOPMENT**

**ALLOWED: 2<sup>1</sup>/<sub>2</sub> HOURS**

**INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER (4) QUESTIONS**

**Question 1 (22 marks) Compulsory**

- (a) State the four (4) levels of software testing. (2 marks)
- (b) Briefly describe functional testing and analysis. (3 marks)
- (c) Based on Leyman and Belady descriptive model of software evolution, identify and briefly describe three properties that characterize the evolution of large software systems (3 marks)
- (d) Outline the advantages of Decomposition in data flow diagram. (4 marks)
- (e) explain the four (4) basic mapping cardinalities. (4 marks)
- (f) explain any three (3) of the characteristics of a good software requirement specification as stipulated by IEEE. (3 marks)
- (g) Briefly discuss how communication would serve as control for a project. (3 marks)

**Question 2 (12 marks)**

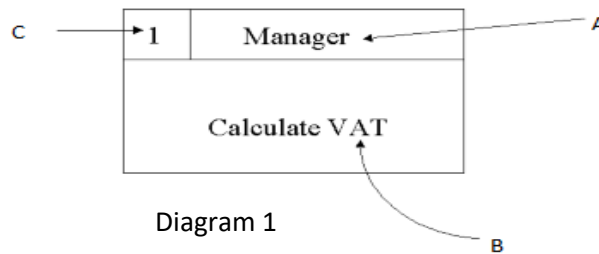
- (a) In what way is application generation different from assembling reusable components (4 marks)
- (b) Describe the indicators to consider in determining whether to continue maintaining a system or re-build it entirely? (3 marks)
- (c) In what way is software process model related to software life cycle model? (5 marks)

Question 3 (12 marks)

- (a) Why is maintenance considered an important aspect of software development process? (4 marks)
- (b) Describe what you understand by these three software process models (6 marks)
  - i. workflow model
  - ii. data-flow model
  - iii. role model
- (c) It has been argued that UML model goes beyond the set of diagrams of a system, substantiate this argument. (2 marks)

Question 4 (12 marks)

- (a) Discuss the reasons behind the development of objectional model in database technology (3 marks)
- (b) Discuss two features among those commonly offered by current Database Management Systems (4 marks)
- (c) The diagram 1 below represents a particular process in a data flow diagram, identify and summarize the meaning of each alphabet. (5 marks)



Question 5 (12 marks)

- (a) Appraise three (3) usefulness of physical flows in data flow diagram. (3 marks)
- (b) Describe the following concepts in entity relationship diagram. (4 marks)
  - (i) entity
  - (ii) relationship
- (c) What is mapping cardinality? (2 marks)
- (d) Explain the major benefits of extreme programming. (3)

Question 6 (12 marks)

- (a) Discuss entity relationship modelling. (5 marks)
- (b) Briefly describe requirement engineering. (3 marks)
- (c) Discuss the coding phase of extreme programming. (4 marks)