

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATION
RESIT/SUPPLEMENTARY / SPECIAL EXAMINATIONS
EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE**

COSC 0231: OBJECT ORIENTED ANALYSIS AND DESIGN

STREAMS: DIP. COMP. SCI

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 03/11/2021

11.30 A.M - 1.30 P.M.

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

SECTION A

Question one (30 marks)

a. Define the Following Terms in Object-oriented analysis and Design:

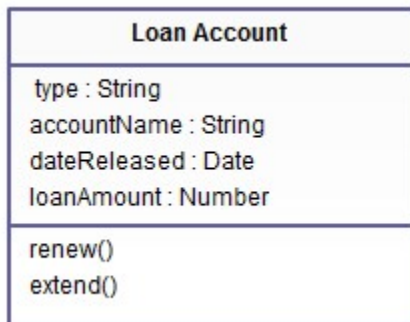
- | | |
|---|-----------|
| i. Refactoring | [2 marks] |
| ii. UML | [2 marks] |
| iii. Objects in UML | [2 marks] |
| b. List the foundational patterns of the GoF and provide an example of each | [6 marks] |
| c. List Three Goals of UML to organizations | [6 marks] |
| d. How is UML different from programming languages such a Java and C++ | [3 marks] |

- e. “**Things** are the most important building blocks of UML”. Give Three examples of Things [3 marks]
- f. Difference between a State Diagram and a Flowchart? [2 marks]
- g. List Four uses of Statechart Diagrams [4 marks]

SECTION B (ANSWER ANY TWO QUESTIONS ONLY)

Question Two (20 marks)

- a. The following figure is an example of a simple class diagram:



- Label & explain the class diagram’s Partitions [8 marks]
- b. What is the purpose of an SSD? List Four symbols used in an SSD [8 marks]
- c. What are the steps required to develop an SSD? [4 marks]

Question THREE (20 marks)

- a. An organization is interested in a UML Package diagram to present a new Software system, explain how you would create a UML Package presentation step-by-step to presentation [10 marks]

Hint: open-source platforms

- b. Based on Q3.a above, State your selection criteria for template [6 marks]
- c. List Four open-source online Platforms for UML [4 marks]

Question FOUR (20 marks)

- a. A CEO of a Software company said: "Using unified modeling language (UML) has consumed lots of hours and caused losses for the company" ... Why could he have said this? [3 marks]

Was the CEO, right? [1 mark]

As a Computer Science student with advanced understanding of UML, why do you think this CEO held such a point of view on UML use by his company? [4 marks]

b. The CEO of above Software company decides to give you an opportunity to prove UML is applicable for his company, he does this by asking you to train his software developers on rapid use of UML

i. Would you agree to this task[1mk], if not, why? [1 mark]

ii. What UML development Tools would you utilize. List FOUR [4 marks]

b. As the UML trainer in above company, explain BRIEFLY the phases of designing and modelling a software system: [7 marks]

Question FIVE (20 marks)

a. An E-commerce firm gives you a contract to develop a Package Diagram for their business model

There REQUIREMENTS include:

-The model should include packages for: Web Shopping, Mobile Shopping, Phone Shopping, and Mail Shopping

-The packages merge Shopping Cart package.

-The same 4 packages use Payment package.

-Both Payment and Shopping Cart packages import other packages.

-Customer and Inventory packages import Payment and shopping cart packages

Implement the Package Diagram in diagrammatic form, clearly labelling all packages and connectors [10 marks]

b. Distinguish Domain from Domain Model and provide ONE example of a Domain

[4

marks]

c. What are the Name(s) and Use of the following symbols In ACTIVITY DIAGRAMS

[6

marks]

Symbol

Name

Use

