



TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS
DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:

BTIT/SEP2024/S-PT

CSE 4201: OBJECT ORIENTED ANALYSIS AND DESIGN

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2024

TIME: 2 HOURS

DATE: Pick Date Dec 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a) Explain object oriented modeling. [2 Marks]
- b) What is AGILE Methodology. Explain this process of system development methodology using a diagram. [6 Marks]
- c) Compare and evaluate the behavioural things in the model. [3 Marks]
- d) Explain the relationships in the UML. [5 Marks]
- e) Define a model. Explain the (a)importance (b)principles of modeling. [5 Marks]
- f) Recall the terms and concepts of classes. [2 Marks]
- g) Identify the importance of interfaces and their roles? [4 Marks]
- h) Explain the importance of packages in the UML with examples. [3 Marks]

Question TWO

- a) Mention and explain the different building blocks of the UML. [6 Marks]
- b) List the three kinds of models used in OOMD to describe a system. Also explain the relationship among them. [6 Marks]
- c) Describe the steps performed in constructing a domain state model. [4 Marks]
- d) Distinguish between sequence and collaboration diagram. [4 Marks]

Question THREE

- a) What is the difference between sequence diagrams and class diagrams? [2 Marks]
- b) What are the steps involved in constructing an application state model? [2 Marks]
- c) Justify the term “Importance of Proper Classification” with a suitable example. [3 Marks]
- d) Explain briefly the concept of class diagram with its notation. [4 Marks]
- e) Explain with the diagram basic UML syntax for State Diagrams. [5 Marks]
- f) Explain the benefits of UML diagram in system development. [5 Marks]

Question FOUR

- a) Prepare an activity diagram that elaborates the details of logging into an email system. Explain the steps with a neat diagram [5 Marks]
- b) Explain the terms and concepts of Use Case diagrams. [5 Marks]
- c) Draw a Use Case diagram for Online Railway Reservation System with analysis [5 Marks]
- d) Explain the common modeling techniques for Component diagrams and for Deployment diagrams. [5 Marks]

Question FIVE

- a) What is a pattern? Describe the three categories of Pattern in system design? [5 Marks]
- b) When a software system uses servers distributed over a network it must provide a means for communication between them. Clients should not need to know where servers are located. To solve this which pattern is used and explain the dynamics and implementation of the pattern? [10 Marks]
- c) Design a TUM student information system for your department. Consider a use case. [5 Marks]