



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE BACHELOR OF SCIENCE IN BUSINESS  
INFORMATION SYSTEMS**

**2<sup>nd</sup> YEAR 2<sup>nd</sup> SEMESTER**

**MAIN CAMPUS**

---

**COURSE CODE: ITB 2208**

**COURSE TITLE: OBJECT ORIENTED ANALYSIS AND DESIGN**

**EXAM VENUE: STREAM:**

**DATE: EXAM SESSION:**

**TIME: 2.00 HOURS**

---

**INSTRUCTIONS:**

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

### QUESTION ONE 30 MARKS

- A. Explain benefits of UML in analysis and designing of a system **(4 marks)**
- B. What is Object-Oriented Analysis and Design? **(4 marks)**
- C. What is a scenario? **(2 marks)**
- D. Explain the rationale for separating the user interface from the business logic. **(10mks)**
- E. Define Use case **(2 marks)**
- F. Describe the following relationships **(8 marks)**
  - Polymorphism
  - Abstraction
  - Encapsulation
  - Dependency

### QUESTION TWO 20 MARKS

- a) A hotel reservation system supports the following functionality: **(10 marks)**
  - (a) Room reservation
  - (b) Changing the properties of a room (for example, from non-smoking to smoking)
  - (c) Customer check-in
  - (d) Customer check-out

Come up with system use cases for the above functionality
- b) Draw a Sequence Diagram for the Question above (2a) **(10 marks)**

### QUESTION THREE 20 MARKS

- a) Identify the players who would have a stake in software development process. What are the concerns of each? How would they benefit from the object-oriented model? **(8 marks)**
- b) What are the benefits of learning design patterns? **(4 marks)**
- c) Develop the use case for depositing money using an ATM machine. **(8 marks)**

### QUESTION FOUR 20 MARKS

- a) Explain Types of Requirement. **(10 marks)**
- b) Identify the players who would have a stake in software development process. What are the concerns of each? How would they benefit from the object-oriented model? **(10 marks)**

### QUESTION FIVE 20 MARKS

- a) A company has several projects, and each employee works in a single project. The human resource system evaluates the personnel needs of each project and matches them against the personnel file to find the best possible employees to be assigned to the project. Come up with the conceptual classes by conducting use case analysis. **(10 marks)**
- b) A hotel reservation system supports the following functionality: **(10 marks)**

Room reservation

Changing the properties of a room (for example, from non-smoking to smoking)

Customer check-in

Customer check-out

Come up with system use cases for the above functionality.