**KISII UNIVERSITY**

**SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY**

**Department of Computing Sciences**

**Unit Name: Object Oriented Analysis & Design**

**Unit Code: BIT 301 & COMP 389**

**Question One**

1. With the aid of an example, explain how you create both an object and a class using either java or python programming language. (6 marks)
2. Once a program code is written, it has to be tested to detect and subsequently handle all the errors in it. Explain the following levels of testing. (6 marks)
3. Unit testing
4. Subsystem testing
5. System testing
6. Software quality assurance is imperative in both product and process development. Describe the difference between software quality and quality assurance. (4 marks)
7. Describe the difference object oriented analysis and object oriented design. (4 marks)
8. Object oriented programming (OOP) is a programming paradigm based upon objects (having both data and methods) that aims to infuse the advantages pf modularity and reusability. Highlight any five crucial features of object oriented programming. (5 marks)
9. Describe any five features of message passing as applied in OOAD. (5 marks)

**Question Two**

Explain the concept of polymorphism with a relevant example using either java of python in its implementation. (5 marks)

Describe any five benefits of employing object oriented models in software development. (10 marks)

Describe the difference between object modelling and functional modelling. (5 marks)

**Question Three**

Relationships are the connections between components. Explain four types of relationships that can be represented in unified modelling Language (UML). (8 marks)

Explain the difference between use case diagram and deployment diagram as applied in UML. (8 marks)

Elucidate the difference between unidirectional association and bidirectional association. (4 marks)

**Question Four**

Discuss the concept of grey box testing citing any four imperative types of such testing. (8 marks)

The Structured Analysis/ Structured Design (SASD) is the traditional approach to software development based upon the waterfall model. Explain the various phases of system development using SASD. (12 marks)

**Question Five**

Describe any five software quality factors that you may be aware of as system users. (10 marks)

Software Quality Models are a standardized way of measuring a software product. With the increasing trend in software industry, new applications are planned and developed every day. This eventually gives rise to the need for reassuring that the product so built meets at least the expected standards. Briefly discuss any five software quality models that you know. (10 marks)