**KISII UNIVERSITY**

**SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY**

**COMP 410**

**UNIT NAME: Modelling and Simulation**

Instructions: Answer Question **ONE** and any **TWO** Questions

**Question One**

1. Describe the term modeling. (2 Marks)
2. Highlight the steps of performing simulation analysis. (10 Marks)
3. Explain any for merits of employing modelling and simulation. (5 Marks)
4. Enumerate the main application areas of modelling and simulation. (5 Marks)
5. Explain any four system state variables. (8 Marks)

**Question Two**

1. Describe any four classifications of system models. (8 Marks)
2. With the aid of a relevant diagram, discuss the steps of a modelling process. (12 Marks)

**Question Three**

1. Explain the difference between validation and verification. (4 Marks)
2. Describe the various types of validities in modelling. (8 Marks)
3. Explain the concept of Monte Carlo Simulation hence state its goal. (4 Marks)
4. Highlight any two demerits of using Monte Carlo’s Simulation. (4 Marks)

**Question Four**

1. Explain the objective of a database in modelling and simulation. (5 Marks)
2. Discuss the concept of neural networks in modelling and simulation. (5 Marks)
3. Describe any five key features of discrete event simulation. (10 Marks)

**Question Five**

1. **Discuss the two general approaches to continuous simulation.** (10 Marks)
2. Explain the various application areas of **continuous simulation hence its objective. (10 marks)**