



KENYATTA UNIVERSITY

DIGITAL SCHOOL OF VIRTUAL AND OPEN LEARNING (DSVOL)

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(INFORMATION TECHNOLOGY)

SIT 300: COMPONENT PROGRAMMING

2ND TRIMESTER 2023/2024

TIME: 2 HOURS

INSTRUCTIONS:

SECTION A: This question compulsory (30 marks)

- a) Define and explain Component Adaptation. (2 marks)
- b) Explain the following component Oriented Programming concepts. (8 marks)
 - i) Component Qualification
 - ii) Component Composition
- c) Show and explain the two major elements of the NET component Framework's architecture. (6 marks)
- d) C# is a modern multi-paradigm component-oriented programming language. Explain. (6 marks)
- e) Explain what is meant by component reuse model, further discuss the four major fundamental steps followed during reuse of any component. (8 marks)

SECTION B: Attempt any two from this section.

Question Two (20 marks)

- a) Describe the characteristics of component Assembly Model. (8 marks)
- b) The OSGi Component architecture exhibit several hosting environment services show and explain these services. (8 marks)
- c) A component is said to have persistence, expound. (4 marks)

Question Three (20 marks)

- a) Explain the Framework activities of Component-Based Software Engineering. (10 marks)
- b) Explain the major components of the CORBA architecture. (8 marks)
- c) Explain the process of developing a service bundle using the Open Service Gateway Initiative (OSGi) component. (2 marks)

Question Four (20 marks)

- a) Describe the benefits of Component Driven Development as an application development paradigm. (10 marks)
- b) Explain component framework and show three models that are the building blocks component frameworks. (10 marks)

Question Five (20 marks)

- a) Explain with examples the distinction between a component and an object. (8 marks)
- b) Distinguish between the component-oriented programming and object-oriented programming using the existing software engineering aspects. (6 marks)
- c) Clearly indicate and explain the characteristics and features of the Web services technology indicating the use of the Web service component framework. (8 marks)