



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

SIT 300/ SCO 301: COMPONENT PROGRAMMING

DATE: 23/3/2021

TIME: 8.30-10.30 AM

INSTRUCTION: Answer Question ONE and any other TWO Question

QUESTION ONE (30 MARKS)

- a) Explain three Goals of software component. (3 marks)
- b) Explain five Forms of software Components. (5 marks)
- c) Explain three most important principles of component-oriented programming. (3 marks)
- d) With a help of a diagram to explain the elements of a component model. (6 marks)
- e) With a help of a diagram to explain the Component model services. (4 marks)
- f) Explain three Characteristics of software Components. (3 marks)
- g) Explain three benefits of software components. (3 marks)
- h) Explain three elements of a JavaBean. (3 marks)

QUESTION TWO (20 MARKS)

- a) Discuss five features of JavaBeans. (5 marks)
- b) Describe three types of Java Beans. (3 marks)
- c) Describe three Development Phases of JavaBeans. (3 marks)

- d) Describe the Steps of creating Java Bean and write a simple Bean that defines a rectangle of a certain size and background color (red) in its constructor. Within this red rectangle, the Bean displays a smaller rectangle in green. In addition to the constructor, the Bean includes a simple property called color that it initially sets to green. Notice that the color property is declared private. The Bean includes two public methods, one to get the value of the color property and the other to set the value of color. Because the color property is private, it cannot be accessed directly; it can only be accessed via these getter and setter methods. (9 marks)

QUESTION THREE (20 MARKS)

- a) Discuss Enterprise Java Bean and explain the five features that enable it when written once and deployed on any server platform that supports the Enterprise JavaBeans specification. (7 marks)
- b) Describe three types of Enterprise Beans. (6 marks)
- c) Describe three Component of Enterprise JavaBeans Architecture. (7 marks)

QUESTION FOUR (20 MARKS)

- a) What is CORBA? Using a diagram describe its significance role in software component development. (5 marks)
- b) Using a diagram describe and illustrate how data communication from client to server is accomplished through a well-defined object-oriented interface. (6 marks)
- c) Discuss seven basic steps for CORBA development. (9 marks)

QUESTION FIVE (20 MARKS)

- a) Using a diagram describe web Services architecture. (5 marks)
- b) Describe three Components of Web Services. (9 marks)
- c) Discuss three benefits of using Web Services. (6 marks)