



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN COMPUTER SCIENCE

SCO 310: COMPONENT PROGRAMMING

Date: 9/8/2016

Time: 8:30 – 10:30 AM

INSTRUCTIONS

Answer **question ONE** and any other **TWO** questions

QUESTION ONE (30 MARKS) (compulsory)

- a) Explain the term Component Oriented Programming (2 marks)
- b) Explain **any two** major goals of Component Oriented Programming (4 marks)
- c) From the viewpoint of the engineering process, explain the five different forms from which components could be classified as. (10 marks)
- d) Explain **any three** principles that govern Component Oriented Programming. (6 marks)
- e) With the aid of a component chart, explain the composition of a Component Model (8 marks)

QUESTION TWO (20 MARKS)

- a) Briefly explain the difference between Lightweight GUI Components and Heavyweight GUI Components (4 marks)
- b) Using a UML class diagram, show the inheritance hierarchy of classes from which lightweight Swing components inherit their common attributes and behaviors. (4 marks)

- c) Explain the six composition operators defined in a component infrastructure that component software engineers can modify a component or integrate several components together to generate a new component or application. (12 marks)

QUESTION THREE (20 MARKS)

- a) Define the term javabean (2 marks)
- b) Explain **any five** essential information and requirements for developing javabeans (10 marks)
- c) Explain the concept of event handling as applied to component oriented programming using Swing or any other technology of your choice as an example (8 marks)

QUESTION FOUR (20 MARKS)

- a) With the aid of a diagram, explain the CORBA Architecture Basics (14 marks)
- b) Name **any six** characteristics and features of the Web services technology. (6 marks)

QUESTION FIVE (20 MARKS)

- a) With the aid of a diagram, provide a brief overview of the .NET Framework. (14 marks)
- b) Explain **any three** hosting services that the OSGi framework provides. (6 marks)