



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE
SCS 420: SOFTWARE METRICS AND QUALITY MANAGEMENT

DATE: Friday 20th April 2012 **TIME: 2.00p.m -4.00p.m**

Instructions:

Answer question 1 and nay other two (2) questions.

Question 1

- (a) (i) Give an elaborate explanation of the following are concerned with:
- Software metrics
 - Quality management.
- [4 marks]
- (ii) Define the term software lifecycle processes and explain the following primary lifecycles processes:
- Acquisition
 - Supply
 - Development
 - Operation
 - Maintenance
- [6 marks]
- (b) (i) Give a precise explanation of what is meant by prescriptive process models.
- [2 marks]
- (ii) Why are prescriptive models important? [2 marks]
- (iii) How would one ensure the delivery of the right software product? [2 marks]
- (iv) Discuss two problems that are sometimes encountered when the waterfall model is Applied.
- [4 marks]
- (c) (i) List and explain six attributes of effective software metrics. [6 marks]
- (ii) Differentiate between alpha test and beta test. [4 marks]

Question 2

- (a) List and explain six key quality attributes for computer software. [6 marks]
- (b) Compute the function point value for a project with the following information domain characteristics:

• External inputs	32
• External outputs	60
• External inquiries	24
• Internal logical files	8
• External interface files	2

Assume that all complexity adjustments are average (i.e. 4, 5, 4, 10, and 7 respectively). [8 marks]

- (c) What are the activities of the software quality assurance (SQA) group? [6 marks]

Question 3

- (a) Identify and state the use of any four elements of a software configuration management system.. [4 marks]
- (b) State four objectives of a software configuration management (SCM) process. [4 marks]
- (c) Give a detailed explanation of the following terms: [12 marks]
- Requirements tracing
 - Audit trails
 - Version control
 - Change control
 - Configuration audit
 - Status reporting

Question 4

- a) Give a general definition of system testing and discuss the purposes of the listed tests of system testing: [8 marks]
- Recovery testing
 - Security testing
 - Stress testing
 - Performance testing.
- (b) Identify and define nine characteristics of an object oriented design that are described by Whitmire. [9 marks]

Question 5

- (a) Define the six activities of the Business Process Reengineering. [12 marks]
- (b) (i) Define documentation
- (ii) State three reasons why document restructuring is important. [8 marks]