KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
THIRD YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)

Date: 28th July, 2022
Time: 2.30 – 4.30pm

KCS 300 - SOFTWARE ENGINEERING

INSTRUCTIONS TO CANDIDATES

ANSWER **QUESTION ONE (COMPULSORY)** AND **ANY OTHER TWO** QUESTIONS

QUESTION ONE (30 MARKS)

a) Explain two factors that have led to emergence of software engineering.

(4 marks)

b) Explain the detailed requirements normally included in a system design specification.

(6 marks)

c) Explain two ways you would gather requirements for your project.

(4 marks)

d) List and explain two non-functional characteristics of software.

(4 marks)

e) Explain two goals of software quality assurance.

(2 marks)

f) Describe two types of prototyping used in software development.

(4 marks)

g) Kiriri University intends to change the main student's management software system that is currently being used. The IT department has sought your advice on the best approach in achieving a smooth transition. Outline three strategies that the department may use.

(6 marks)

QUESTION TWO (20 MARKS)

a) Requirement analysis is critical phase in any software development project. Peter Awori, a project supervisor, is taking his team through the software requirements phase. Citing five reasons, evaluate the importance of software requirements analysis phase in software development

(10 marks)

b) As a member of the team, the supervisor has instructed you to come up with Software Requirements Specifications document. Explain three major components you would include in this document.

(6 marks)

c) Differentiate between "black box software testing" and "white box software testing"

(4 marks)

QUESTION THREE (20 MARKS)

a) Software development life cycle involves different phases. As a professional software developer, discuss the major phases of software development.

(10 marks)

b) Explain two types of software maintenance you would undertake in your recently completed software project.

(5 marks)

c) System testing usually consists of different kinds of testing activities. Discuss two of such methods.

(5 marks)

QUESTION FOUR (20 MARKS)

Software project management is an important skill that every software engineer should possess. As an expert in this field, you have been tasked to lead a team of developers assigned to come up with a PSV parking system that would reduce congestion within Nairobi's central business district. The county government has contracted you as a project manager to oversee the project to its completion.

a) Define software project.

(2 marks)

b) List and explain three critical constraints for such a software project.

(6 marks)

c) Explain three major project management activities you will undertake.

(6 marks)

d) List and explain three software management tools which will help in effective project management.

(6 marks)

QUESTION FIVE (20 MARKS)

a) Describe the following software engineering terms:

   i) Portability   (2 marks)

   ii) Scalability   (2 marks)

   iii) Code refactoring   (2 marks)

b) As a system project manager explain how standards facilitate the development process of a system.

(8 marks)

c) Describe the security requirements of a system and introduce appropriate procedures and precautions

(6 marks)