KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR
FOR THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE
KCS 300 – FOUNDATIONS OF SOFTWARE ENGINEERING

Date: 14TH APRIL 2023
Time: 2:30PM – 4:30PM

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Describe the following software engineering terms:
   i) Compatibility   (2 Marks)
   ii) Operational   (2 Marks)
   iii) Maintainability   (2 Marks)
b) Differentiate between "black box" and "white box" software testing in Software Engineering
                                                                             (4 Marks)
c) Describe the three factors that contributed to the development of software engineering   (6 Marks)
d) Discuss the importance of software quality assurance   (4 Marks)
e) Describe the software development prototyping model   (4 Marks)
f) Kiriri University intends to replace the current student management software system. The IT department has asked for your opinion on the best way to ensure a smooth transition. Explain two possible approaches for the department.   (6 Marks)

QUESTION TWO (20 MARKS)

a) A critical phase in any software development project is requirement analysis. George, the project manager, is guiding his group through the software requirements phase. Explain the significance of the software requirements analysis phase in software development using five examples.   (10 Marks)
b) Describe two methods for gathering project requirements   (4 Marks)
c) System testing typically consists of various types of testing activities. Describe, three types of software tests that can be performed   (6 Marks)

QUESTION THREE (20 MARKS)

a) Describe two types of software maintenance that you would perform on a recently completed software project.   (4 Marks)
b) The software development life cycle is divided into phases. Describe the major phases of software development as a professional software developer.   (10 Marks)
c) As a team member, the supervisor has asked you to create a Software Requirements Specifications document. Describe three major elements you would include in this document   (6 Marks)

QUESTION FOUR (20 MARKS)

a) Using relevant examples, explain the significance of incorporating security into software.

(6 Marks)

b) Describe three design levels in software development.   (6 Marks)

c) Explain, as a system project manager, how standards aid in the development of a
    system   (8 Marks)

QUESTION FIVE (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)