KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING/APPLIED COMPUTER SCIENCE/BACHELOR OF INFORMATION SCIENCE

SECOND SEMESTER 2023/2024

[JAN – APRIL, 2024]

ACMP 119/SOEN 112/INS 352: SYSTEM ANALYSIS AND DESIGN

STREAM: Y1 S2 **TIME: 2 HOURS**

MONDAY, 12:00 DAY: - 2:00 P.M. **DATE: 15/04/2024**

INSTRUCTIONS

1. ***Do not write anything on this question paper.***
2. ***Answer question ONE (Compulsory) and any other TWO questions.***

QUESTION ONE (COMPULSORY)

a. Explain any five basic elements (characteristics) of a system. (10marks)
b. System development has two major components. Explain. (5 marks)
c. Differentiate deterministic systems from probabilistic systems. (2 marks)
d. Extreme programming is based on five values. State them. (5 marks)
e. Explain the term "Refactoring" as used in extreme programming. (2 marks)
f. There are many ways to evaluate programs and activities. Explain the three main methods used by public agencies. (6 marks)

QUESTION TWO (20MARKS)

a. Differentiate open-response questionnaires from closed-response questionnaires. (10 marks)
b. Explain the four parts of a decision table. (4 marks)
c. Structured English contains three basic types of statements that describe a process. Explain the statements. (6 marks)

QUESTION THREE (20MARKS)

a. Describe the two broad categories of software requirements. (2 marks)

b. Differentiate process metrics from resource metrics as measures of a software product and software process. (4 marks)
c. i. Explain "conversion" as used in system analysis and design. (2 marks)
ii. What are the six activities involved in a conversion plan? (6 marks)

d. Describe the three types of system maintenance in system analysis and design. (6 marks)

QUESTION FOUR (20MARKS)

Using a clear labelled diagram, describe the iterative model of software development, clearly bringing out its advantages and disadvantages. (20 marks)

QUESTION FIVE (20MARKS)

a. A property **owner** is faced with a **choice** of:

(a) A large-scale investment (A) to improve her flats. This could produce a substantial pay-off in terms of increased revenue net of costs but will require an investment of ksh1,400,000. After extensive market research, it is considered that there is a 40% chance that a pay-off of Ksh 2,500,000 will be obtained, but there is a 60% chance that it will be only Ksh 800,000.

(b) A smaller scale project (B) to re-decorate her premises. At Ksh 500,000 this is less costly but will produce a lower pay-off. Research data suggests a 30% chance of a gain of Ksh 1,000,000 but a 70% chance of it being only Ksh 500,000.

Q: Draw the decision tree representing the options open for the owner. (with proper calculation). (7 marks)

d. Compare Rapid Application Modelling versus the traditional software development life cycle. (8 marks)

e. Explain the advantages of Rapid Application Development model. (5 marks)