MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR SCIENCE (INFORMATION TECHNOLOGY)

SIT263: SOFTWARE ENGINEERING

DATE: **TIME:**

INSTRUCTIONS: Answer Question ONE and other TWO Questions

QUESTION ONE (COMPULSORY) (30 MARKS)
a)   Define software engineering and state it's significance   (3 marks)
b)   Discuss five stages of software evolution citing the importance for each.   (10 marks)
c)   Analyze the three categories of software according to Lehman   (6 marks)
d)   Illustrate the relationship between programming, software design and software development   (6 marks)
e)   Discuss five properties of a good software   (5 marks)

QUESTION TWO (20 MARKS)
a)   Illustrate 10 steps of system development life cycle   (10 marks)
b)   Software development models are used to help the developer select a strategy to develop a software product. Discuss five such models describing the most suitable scenario for the application of each of them.   (10 marks)

QUESTION THREE (20 MARKS)
a)   Highlight four characteristics of a software project   (4 marks)
b)   In software project management there are the main aspects involved, discuss the roles played by the project manager in the following paradigms
        i.   Managing people   (3 marks)
        ii.   Managing project   (3 marks)
c)   Estimation is critical in software project management. Discuss four aspects that have to be estimated.   (8 marks)
d)   State two methods used in software project estimation   (2 marks)

QUESTION FOUR (20 MARKS)

a) Illustrate the application of the following project management tools.
      i. Gant chart   (2 marks)
      ii. PERT chart   (2 marks)
      iii. Resource histogram   (2 marks)
      iv. Critical path Analysis   (2 marks)

b) Requirement elicitation is a critical phase in software project implementation. Discuss four methods used in this phase.   (8 marks)

c) With clear examples differentiate between functional and non-functional software requirements.   (4 marks)

QUESTION FIVE (20 MARKS)

a) Define a system analyst   (2 marks)

b) As the ICT manager in an organization and you are to hire a systems analyst. Highlight six job description roles for this cadre of staff.   (6 marks)

c) Analyze five software metrics   (5 marks)

d) Highlight two software design levels   (2 marks)

e) Differentiate between cohesion and coupling in software design, then recommend the one which is more desirable in a high quality software   (5 marks)