



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 its 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)