# MAASAI MARA UNIVERSITY

## REGULAR UNIVERSITY EXAMINATIONS

## 2018/2019 ACADEMIC YEAR

## THIRD YEAR FIRST SEMESTER EXAMINATION

### SCHOOL OF SCIENCE AND INFORMATION SCIENCES

### DEPARTMENT OF COMPUTING AND INFORMATION SCIENCES

### FOR DEGREE IN COMPUTER SCIENCE

### COURSE CODE: COM - 3104

### COURSE TITLE: SOFTWARE ENGINEERING I

**DATE:04TH DECEMBER 2018** **TIME: 11:00- 13:00 (2 HRS)**

INSTRUCTION TO CANDIDATE

i. Question ONE in section A is compulsory
ii. Answer any OTHER Two (2) Questions from section B
iii. Use diagrams, example and illustration where necessary
iv. All questions in section B have equal marks

**SECTION A**

**QUESTION 0NE [30 Marks]**

a. Define the following terms
   i. What is software **[2 marks]**
   ii. What is software engineering **[2 marks]**
   iii. Software process **[2 marks]**
   iv. Software process model **[2 marks]**

b. Distinguish between the following
   i. Software engineering and computer science **[2 marks]**
   ii. Software engineering and system engineering **[2 marks]**

c. State and explain TWO software products **[4 marks]**

d. Discuss **Three** types of critical systems. **[6 marks]**

e. Discuss Four Principal dimensions of dependability. **[8 marks]**

**SECTION B**

**QUESTION TWO [20 MARKS]**

a. Explain the following activities required to develop a software system
   i. Specification **[2 marks]**
   **ii.** Design **[2 marks]**
   iii. Validation **[2 marks]**
   iv. Evolution **[2 marks]**

b. State the three Generic software process models **[3 marks]**

c. Discuss the two types of evolutionary development model **[4 marks]**

d. Outline three problems of evolutionary development **[3 marks]**

e. Outline TWO applicability of evolutionary development **[2 marks]**

**QUESTION THREE [20 MARKS]**

i. Discuss the Four stages of Component-based software engineering **[8 marks]**

ii. Explain the Two approaches of Component-based software engineering **[4 marks]**

iii. Outline the six Design process activities **[6 marks]**

iv. The design is usually documented as a set of graphical models. State any two models **[2 marks]**

**QUESTION FOUR [20 MARKS]**

i. Define the term "Programming and debugging" **[2 marks]**

ii. Explain the debugging process **[4 marks]**

   a. Distinguish between the following Software Verification and validation (V & V) **[4 marks]**

   b. Component testing and systems testing **[4 marks]**

iii. Define the Computer-aided software engineering (CASE) **[2 marks]**

iv. Discuss the following CASE Classification helps understand the different types of CASE tools and their support for process activities

   a. Functional perspective **[1 mark]**

   b. Integration perspective **[1 mark]**

**//END**