MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER
SPECIAL/SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
BACHELOR OF SCIENCE IN INFORMATION SYSTEMS AND KNOWLEDGE MANGEMENT

COURSE CODE: BIT 310

COURSE TITLE: SOFTWARE ENGINEERING

DATE: 06/12/2022   **TIME:** 08:00-10:00PM

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer TWO (2) questions

TIME: 2 Hours

BIT 310: Software Engineering

Question One **(30 Marks)**

1. (a) Define the following terms
   - (i)   Software   (1 mark)
   - (ii)   Software engineering   (1 mark)
   - (iii)   Software engineer   (1 mark)
   (b) Briefly explain the modern way of building software   (2 marks)
   (c) Good software must deliver on its functional and non-functional requirements. For a case of a software for automating student clearance from a university, suggest any five:
   - (i) Functional requirements   (5 marks)
   - (ii) Non-functional requirements   (5 marks)
   (d) State and explain any two roles played by a software engineer   (6 marks)
   (e) Differentiate between the following software engineering concepts
   - (i) Software engineering and computer science   (2 marks)
   - (ii) Software maintainability and dependability   (2 marks)
   - (iv)   Software acceptability and efficiency   (2 marks)
   (f) Identify any three elements of software engineering   (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS FROM THIS SECTION

Question Two

In a certain university, it was noticed that students make long queues with manual clearance forms in different offices during the process of clearance. As an ICT manager, you decide to write a board paper for approval to create a software that can aid in student clearance. Write a sample board paper to this effect.   (20 marks)

Question Three   **(20 Marks)**

a) Discuss the various software design levels differentiating among them   (6 marks)

b) Provide a well labelled diagram showing software design process that encompasses the levels discussed in 3(a).   (6 marks)

c) Cohesion is a measure that defines the degree of intra-dependability within elements of a module. The greater the cohesion, the better is the program design. There are seven types of cohesion. Other than Co-incidental cohesion, explain any other four cohesion types known to you.   (8 marks)

Question Four   **(20 marks)**

Discuss the concept of Computer crime in relation to global health and emporiatrics. Specify crimes specific to your course and suggest ways of solving and preventing them.   (20 marks)

Question Five

(a) Distinguish between software process metrics and software product metrics. (5 marks)

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(b) Write a brief overview of the various forms of software process metrics available today and discuss how they might be usefully employed from the initial project stages, through to the commissioning of a new system. Illustrate your answers with examples.

(10 marks)

(c) Define what is meant by reverse engineering and re-engineering of a software system, distinguish between these two processes, and explain how these two processes are related.

(5 marks)

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