



(Knowledge for Development)

KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATIONS
YEAR ONE SEMESTER ONE EXAMINATIONS**

**FOR THE DEGREE OF
MASTER OF COMPUTER SCIENCE**

COURSE CODE : MCS 811
**COURSE TITLE : ADVANCED SOFTWARE
ENGINEERING**

DATE: 17/08/2023 TIME: 02.00 P.M – 05.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [20 MARKS]

- a) Define the following terms:
- i. Software Engineering [2 Marks]
 - ii. Software Implementation [2 Marks]
 - iii. Software Evolution [2 Marks]
- b) Outline the components of software development paradigm. [3 Marks]
- c) Distinguish between the following:
- i. Software design paradigm and Software programming paradigm. [2 Marks]
 - ii. Software engineering and Computer Science [1 Marks]
- d) Okech is working on a Commercial flight control software for a company in UK. Explain the software process activities he will undertake in this project [8 Marks]

QUESTION TWO [20 MARKS]

- a) Software engineers must behave in an honest and ethically responsible way if they are to be respected as professionals. Discuss Issues of Professional Responsibility that are associated with software engineers. [10 Marks]
- b) Software implementation plans helps a company to find and deploy the right software for its business needs. Adopting new software is both time-consuming and can be costly in terms of finances and human resources. Discuss how you would build a business case for adopting a new software for this organization. [10 Marks]

QUESTION THREE [20 MARKS]

SDLC provides a series of steps to be followed to design and develop a software product efficiently. Discuss how a software engineer would use this framework in software development. [20 Marks]

QUESTION FOUR [20 MARKS]

- a) The software requirements are description of features and functionalities of the target system.
- i. Explain the software engineering requirements process. [8 Marks]
 - ii. Outline any FOUR features that may be included in the software requirements specification document. [4 Marks]
 - iii. Describe the requirement elicitation process that must be followed in order to elicit for requirements for a software system. [8 Marks]

QUESTION FIVE [20 MARKS]

- a) Software Measures can be understood as a process of quantifying and symbolizing various attributes and aspects of software. Software Metrics provide measures for various aspects of software process and software product. Explain any FOUR software metrics used to measure software during development. [8 Marks]
- b) Software design yields three levels of design. Explain these software design levels. [6 Marks]

c) Object Oriented Design (OOD) works around the entities and their characteristics instead of functions involved in the software system. Discuss the following concepts as used in Object Oriented Design (OOD):

- i. Objects [2 Marks]
- ii. Encapsulation [2 Marks]
- iii. Polymorphism [2 Marks]