(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF
MASTER OF COMPUTER SCIENCE

COURSE CODE   :   MCS 811

COURSE TITLE   :   ADVANCED SOFTWARE ENGINEERING

DATE: 01/10/2022   TIME: 09.00 A.M – 12.00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [20 MARKS]

a) Define the following terms as used in software engineering:

      i. Software   [2 Marks]

      ii. Software Implementation   [2 Marks]

      iii. Software Evolution   [2 Marks]

b) Outline the main constituents of software development paradigm.   [3 Marks]

c) Distinguish between the following terms:

      i. Software design paradigm and Software programming paradigm.   [2 Marks]

      ii. Software engineering and Computer Science   [1 Marks]

d) Peter Khan is working on a Commercial flight control software project for an NGO based in UK. Explain the main 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 some of the Issues of Professional Responsibility associated with software engineers.   [10 Marks]

b) Software implementation plan helps your company 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 the steps in SDLC framework. [20 Marks]

QUESTION FOUR [20 MARKS]

a) The software requirements are description of features and functionalities of the target system. Requirements convey the expectations of users from the software product.

    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 that you may use 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. With relevant examples discuss the following concepts as used in Object Oriented Design (OOD):

    i. Objects   [2 Marks]

    ii. Encapsulation   [2 Marks]

    iii. Polymorphism   [2 Marks]