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(Knowledge for Development)

**KIBABII UNIVERSITY  
(KIBU)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SECOND YEAR SECOND SEMESTER EXAMINATION**

**FOR THE DIPLOMA IN**

**(INFORMATION TECHNOLOGY)**

**COURSE CODE: DIT 074**  
**COURSE TITLE: INTRODUCTION TO SOFTWARE ENGINEERING**

**DATE: 26/07/2022    TIME: 8.00 A.M. – 10.00 A.M.    2HRS**

**INSTRUCTIONS TO CANDIDATES:**  
**ANSWER QUESTIONS ONE AND ANY OTHER TWO.**

Paper Consists of 3 Printed Pages. Please Turn Over ➔

**QUESTION ONE (COMPULSORY) [24 MARKS]**

- a. Define the software engineering [2 marks]
- b. Outline four main phases of the general software development life cycle model [8 marks]
- c. Discuss the quality attributes of software product [4 marks]
- d. What are the key challenges facing software engineering today? [4 marks]
- e. A software has been proposed in a company and the client needs an expert to teach the company employees on how to go through its engineering process. Give reasons why software engineering is important. [6 marks]

**QUESTION TWO [18 MARKS]**

- a. "The Spiral model overcomes the limitation of the Waterfall cycle model". Justify. [4 marks]
- b. Explain why the Spiral model is appropriate for large-scale and mission critical applications. [4 marks]
- c. What's the different between Traditional Software Development methods and Agile Software development? [4 marks]
- d. Current trends in software engineering are moving away from the waterfall model for large projects and moving toward iterative methods such as the spiral model? What are we gaining and losing as a result? [6 marks]

**QUESTION THREE [18 MARKS]**

- a. List the activities during project Initiation. [4 marks]
- b. Outline FOUR reasons for the Failure of Water Fall Model. [4 marks]
- c. State and explain the fundamental activities of a software process? [8 marks]
- d. A new system can be achieved using prototyping model, what are the prototyping approaches in software process? [2 marks]

**QUESTION FOUR [8 MARKS]**

- a. What are functional vs nonfunctional requirements? [4 marks]
- b. How would you contrast requirements and design? [2 marks]
- c. What are the characteristics of SRS? [6 marks]

- d. Assuming you are a software engineer in a company, what are the important roles of Conventional Component within the Software Architecture would you consider to have a successful project? **[6 marks]**

**QUESTION FIVE [18 MARKS]**

- a. Analyse and design a simple management information system of a library using one of the structured methodology and the OO methodology. The system allows the users to manage books (including adding, deleting, displaying and updating books) and readers (including adding, deleting, displaying and updating readers, borrowing and returning books). Write out the following specifications briefly:
- i. Requirements specification **[8 marks]**
  - ii. Design specification **[6 marks]**
- b. What are the types of software maintenance? **[4 marks]**