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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2020/201 ACADEMIC YEAR ONE**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF SCHOOL OF PURE AND APPLIED SCIENCES**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**COURSE CODE: DIT 11**

**COURSE TITLE: SOFTWARE ENGINEERING**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 16/08/2021 TIME: 09.00-11.00 AM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of TWO (2) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. What is software engineering? [2 marks]
2. Differentiate between software engineering and software re-engineering. [4 marks]
3. Software engineering principles use abstraction and decomposition techniques to reduce problem complexity. Explain what is meant by the following terms. [4 marks]
4. Abstraction
5. Decomposition
6. Software design has two fundamental different approaches (Top-down and bottom-up). State and give two advantages of each approach. [8 marks]
7. With the context of software design, explain what is meant by the following terms. [4 marks]
8. Cohesion
9. Coupling
10. Differentiate between functional and non-functional requirements. [4 marks]
11. Describe four types of non-functional requirements that may be placed on a system. [4 marks]

**QUESTION TWO [20 MARKS]**

1. A software development life cycle is a structure imposed on the development of a software product. Discuss the six activities carried out in software development life cycle. [12marks]
2. It is a common programming practice to break a large program into modules. Outline four advantages of modular programming. [8 marks]

**QUESTION THREE [20 MARKS]**

1. Explain four major shortcomings that we might face if we use the classical waterfall model for developing all types of software products. [8 marks]
2. Differentiate between black-box testing and white-box testing [4 marks]
3. Explain four types of software maintenance based on their characteristics [4 marks]

**QUESTION FOUR [20 MARKS]**

1. Explain the following software testing levels. [10 marks]
2. Unit testing
3. Integration testing
4. System testing
5. Acceptance testing
6. Regression testing
7. Explain how both the waterfall model of the software development and the prototyping model can be accommodated in the spiral process model. [6 marks]
8. Explain the term CASE tool and give two examples of such tools. [4 marks]

**QUESTION FIVE [20 MARKS]**

1. What is a software project? [4 marks]
2. List and explain five major responsibilities of a software project manager. [10 marks]
3. Briefly explain the following types of feasibility studies [6 marks]
4. Economic Feasibility
5. Technical Feasibility
6. Operational Feasibility