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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2018/2019 ACADEMIC YEAR THREE**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY**

**FOR THE DEGREE OF BACHELOR OF INFORMATION SCIENCE**

**COURSE CODE: COM 312**

**COURSE TITLE: SOFTWARE ENGINEERING 1I**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 06/02/2020 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 THREE (3) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. Garissa University has contracted XYZ Company to develop a procurement management system to help improve their service deliver. As a software engineering professional
   1. Explain the types of software testing **[6 marks]**
   2. Explain three roles of each of the following committees
      1. Technical team **[3 marks]**
      2. Quality assurance **[3 marks]**
      3. Management team **[3 marks]**
   3. Explain three types of file conversion you can adopt **[6 marks]**
2. Explain five reasons why software projects fails **[5 marks]**
3. Discuss four quality attributes of a good software system product. **[4 marks]**

**QUESTION TWO**

1. In your third year second semester you will be engaged in a group project task to develop a working software application system.
   1. Explain the roles of project manager in the group. **[4 marks]**
   2. Explain the activities in software requirements analysis **[4 marks]**
2. Discuss the contribution of the following aspects of the modern software development environment.
   1. Dividing a project into short development episodes. **[4 marks]**
   2. Adopting CASE tools. **[4 marks]**
   3. User Centered Design **[4 marks**]

**QUESTION THREE**

1. A small specialist language training company would like to improve the services offered to existing clients and increase its client base by replacing existing call centre and paper-based mailshots, with online web technology deployment.
   1. As a consultant requirements engineer, discuss the tools and techniques that you would deploy to elicit, analyse, document, and check services requested by the company and any actual or implied constraints. **[8 marks]**
   2. Discuss whether it is advantageous for the company to continue requirements engineering beyond the first phase of the development process **[5 marks]**
2. A company is looking to develop a new proprietary software application that can compete amongst current social media platforms. As Chief Analyst, give an outline of the different stages of requirements engineering, and discuss the tools and techniques that you would adopt to derive a complete and consistent requirements specification from the company **[7 marks]**

**QUESTION FOUR**

1. Define the term metrics **[2 marks]**
2. Explain the types of metrics in software development **[6 marks]**
3. Assume that you are a project manager of three projects with the following characteristics:

Project 1. A complex real-time system whose requirements can be relatively easily identified and are stable

Project 2. A web-site for a local library. Requirements are vague and are likely to change in the future.

Project 3. An order processing system with a web-site for a local business. Requirements are vague but stable (i.e. unlikely to change in the near future).

Which models would you choose for each of your projects? Your choices should be properly justified. **[12 marks]**

**QUESTION FIVE**

In your recent trip to Mombasa using “Madaraka Express” train, you realized there was need for the train management to provide an online booking system. As a software development expert,

* 1. develop system requirements specification document **[7 marks]**
  2. Identifying four risks that are likely to occur in the said project and discuss the process you would take to manage the risks in the course of development **[7 marks]**
  3. Explain why you can adopt combination of plan-based and agile methodologies **[6 marks]**