

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**ICT PROJECT I**

**CAT**

Answer **ALL** Questions

1. Giving at least three examples in each scenario, differentiate between functional and non-functional requirements (6 marks)
2. Given a domain in a school with a title “Library Management system”;
3. State at least three data collection methods to be used and why (3 marks)
4. Explain some of the possible individuals that will be of interest in collection data (4 marks)
5. Assuming you chose ‘observation’ as a method, state five items that will be of interest for you to observe (5 marks)
6. Define the term software (2 marks)
7. Elaborate steps in choosing a project title that will lead you into developing software using IT tools. (6 marks)
8. Outline some of the main aspects in the ‘Background’ section (3 marks)
9. Using a clear example with a clear context, define the term citation and reference and demonstrate how they are used in the APA style (4 marks)
10. Explain the significance of a ‘problem statement’ (2 marks)
11. List four programming languages that can be used to develop a stand-alone/MIS based applications (2 marks)
12. Discuss any THREE factors that contribute to success or failure of a project (3 marks)

**a) Functional vs. Non-functional Requirements:**

Functional Requirements:

* User Authentication: The system should allow users to log in using their unique username and password.
* Search Functionality: Users should be able to search for books by title, author, or category.
* Check-out System: The system should allow users to borrow books and keep track of due dates.

Non-functional Requirements:

* Performance: The system should respond to user queries within 2 seconds, even under peak loads.
* Scalability: The system should be able to handle a minimum of 100 concurrent users without degradation in performance.
* Usability: The user interface should be intuitive and accessible, catering to users of different technological competencies.

**b) Library Management System:**

i. Data Collection Methods:

* Surveys: Ask students and librarians questions about how they use the library system to get lots of opinions.
* Interviews: Talk directly to librarians or students to understand their needs and experiences.
* Observation: Watch how people use the library system to see things they might not say in a survey or interview.

ii. Individuals of Interest:

* Students: They use the library the most, so their opinions matter.
* Librarians: They know a lot about how the library works and what users need.
* Teachers: They might have ideas about what resources the library should have to help with teaching.

iii. Observation Items of Interest:

* How students find books in the library.
* How often students use computers or study areas.
* If students have trouble using self-checkout machines.
* How long students spend in different sections of the library.
* How librarians help students find books or use library resources.

**c) Definition of Software:** t's the programs and data that tell the computer what to do.

**d) Steps in Choosing a Project Title:**

* Figure out what the project is about.
* Think of different titles that explain it.
* Pick a title that fits the project.
* Make sure the title isn't already used.
* Ask others for their opinion on the chosen title.
* Get final approval.

**e) Main Aspects in the 'Background' Section:**

* Explain what problem the software is supposed to solve.
* Talk about how others have tried to solve the problem before.
* Say why it's important to solve the problem now.

**f) Citation and Reference in APA Style:** Citation is when you mention where you got information in your writing. Reference is when you list all the sources at the end, like a bibliography.

Citation -"According to Nara (2024), Food is best cooked from scratch."

Reference – Nara Smith. (2024) Home Chef: A Comprehensive Overview. From Scratch,1-5.

**g) Significance of a 'Problem Statement':** The problem statement informs everyone what the project is trying to fix and its purpose. It shows its importance.

.

**h) Programming Languages for Stand-alone/MIS Applications:**

1. C++
2. Java
3. Python
4. Visual Basic

**i) Factors Contributing to Success or Failure of a Project:**

1. Teamwork: If the team works well together, it's more likely to succeed.
2. Understanding: If everyone knows what they're supposed to do, things go smoother.
3. Resources: Having enough time and tools helps get the project done.

Top of Form