1. **Why is understanding user requirements considered the most critical part of SDLC? Illustrate with an example**.

Reason: If the development team misunderstands or fails to capture user requirements correctly, the final product may not meet the users' needs. This can lead to wasted time, extra costs, and the need for rework. This situation is often called the "garbage in, garbage out" problem.

Example: Suppose a university asks for a student attendance tracking system. If the developer thinks the client wants a daily attendance system but the actual requirement is for attendance taken per lecture, the delivered system will be functionally incorrect and require costly redesign.

2. **Explain how phased development provides advantages in terms of project milestones and documentation.**

Phased development divides the project into manageable stages, like planning, design, development, and testing.

Advantages:

Clear milestones: Progress can be tracked at the end of each phase, making it easier to monitor and report.

Better documentation: Each phase creates its own deliverables, like requirement specifications, design documents, and test reports. This ensures that all decisions and progress are recorded.

Example: In a hospital management system, Phase 1 might cover patient registration, Phase 2 might handle appointment scheduling, and Phase 3 might focus on billing, each with its own documentation and milestone checks.

3. **If a project is terminated early during the feasibility study, what could be the possible reasons?**

Technical infeasibility: The required technology doesn't exist or is too complex.

Economic infeasibility: The costs are higher than the expected benefits.

Operational infeasibility: Users cannot or will not use the new system.

Legal or compliance issues: There are conflicts with regulations or policies.

Example: A startup aims to create a drone delivery system for groceries, but the feasibility study reveals that legal restrictions on drones make the project unworkable.

4. **Differentiate between system requirements and functional requirements using an example**

System requirements: General specifications of what the system needs to operate, including hardware, software, performance, and security.

Functional requirements: Specific functions or actions that the system must perform.

Example:

System requirement: "The library management system should run on Windows Server 2022 with at least 8GB RAM."

Functional requirement: "The system must allow a librarian to search for books by title, author, or ISBN."

5. **How does a cost-benefit analysis influence decision-making in SDLC?**

Cost-benefit analysis (CBA) compares the expected costs of the project with the anticipated benefits.

If benefits are greater than costs, the project is typically approved. If not, it may be rejected or altered.

Example: If developing an e-commerce site costs $100,000 but is expected to generate $500,000 in sales over three years, the high return makes it worth pursuing.

6. **Discuss how end-user involvement during requirement gathering improves the quality of the final product.**

Reasons:

It ensures the product meets real user needs.

It identifies potential usability issues early.

It reduces rework by clarifying requirements at the start

Example: When creating an online learning platform, involving teachers and students early helps identify needs like mobile accessibility and offline content download, which might otherwise be overlooked.

32952 – T.H Mudunkotuwa

32243 -G.G.A.K Gurulumulla

32642- T.S.N.N Feranando

32718 -P.A.D. Vihara

32735 – E.M.I.M Ekanayake