1. **Explain the difference between As-Is and To-Be process models. Why should they never be mixed in the same diagram?**

As-Is process models represent the current state of business processes, documenting how operations, workflows, and activities function today, including inefficiencies, bottlenecks, and existing steps.

To-Be process models depict the desired future state after improvements, optimizations, or redesigns, outlining streamlined processes, new technologies, or enhanced efficiencies.

They should never be mixed in the same diagram because combining current and future elements creates confusion, making it impossible to clearly distinguish existing realities from proposed changes, which hinders analysis, stakeholder review, and gap identification. Separate diagrams enable precise gap analysis (comparing As-Is vs. To-Be), accurate baseline documentation, and focused implementation planning without ambiguity or misinterpretation.

2. **Why are UML Use Case diagrams and Activity diagrams both required when moving from process understanding to system design?**

UML Use Case diagrams are required to capture system functionality from a user perspective, showing actors (users or external systems), use cases (key functionalities), and their relationships, providing a high-level black-box view of what the system must do. Activity diagrams are needed to detail the dynamic behavior, internal workflows, decision points, parallel activities, and sequence of actions within processes, offering a fine-grained flowchart-like representation of how the system operates.

Both are essential together because Use Case diagrams focus on external interactions and scope (who does what), while Activity diagrams elaborate internal flows and logic (how it happens), ensuring complete transition from broad process understanding to detailed, implementable system design without overlooking user needs or operational sequences.