Question 1: Briefly explain what is the primary goal of information systems analysis and design? (5 marks)

The primary goal of information systems analysis and design is to improve organizational systems by developing information systems that meet user requirements and support business processes. This involves identifying problems or opportunities and designing solutions that enhance efficiency, effectiveness, and decision-making through reliable, maintainable, and scalable systems.

Question 2: Briefly explain the term "System" in the context of information systems analysis and design. Discuss the Systems Development Life Cycle (SDLC), its phases, and how it can be adapted to different types of projects. Provide examples to illustrate your points. (14 marks)

A system is an interrelated set of business procedures used within one business unit working together for a purpose

- A system has nine characteristics
- A system exists within an environment
- A boundary separates a system from its environment

SDLC is the standard process to build systems. It includes:

- Planning - figuring out what's needed
- Analysis - digging into current systems and gathering requirements
- Design - deciding how the system will work
- Implementation - coding, testing, deploying
- Maintenance - fixing/updating post-launch
  It can be tailored:
    - Waterfall is step-by-step, good for stable projects.
    - Agile is flexible and iterative, better for evolving needs.
      Example: A banking app might use Agile to release features faster.

Question 3: Explain the concept of "Decomposition" and its importance in systems analysis. (5 marks)

Decomposition is the process of breaking down a system into smaller, more manageable subsystems or components. It improves understandability, supports modular development, enhances maintenance, and allows for better focus on individual functions within the system. It is a core principle in structured analysis.

Question 4: What are the primary reasons for outsourcing information systems applications and operations? Provide some advantages and disadvantages of off-the-shelf software. (10 marks)

Reasons for outsourcing:

- To reduce development and operational costs
- To access specialized expertise not available in-house
- To focus on the organization's core competencies

Off-the-shelf software:
Advantages:

- Shorter development time
- Lower initial cost
- Often well-tested with vendor support

Disadvantages:

- May only satisfy partial requirements (e.g., 70%)
- Limited customization options
- Dependent on vendor viability and update cycles

Question 5: You are in charge of a large organization. List and explain three concerns associated with cloud computing in your organization. (6 marks)

1. Data security – Sensitive organizational data stored off-premises may be at risk.
2. Service reliability – Dependence on cloud provider uptime and availability.
3. Compliance – Ensuring adherence to legal and regulatory requirements (e.g., data residency laws).

Question 6: Which tools would you use for simple projects or smaller parts of large projects to show start and completion dates? Network Diagrams, Gantt Charts, Flowcharts, or Data Flow Diagrams? Explain which one you select and provide your rationale. (6 marks)

The tool I would use for simple projects or smaller parts of large projects to show start and completion dates would be Gantt Charts. They show project tasks over time, state start and finish dates, task durations, and overlaps.

Question 7: What is the definition of Critical Path in project management? (5 marks)

The Critical Path is the sequence of dependent tasks that determines the shortest time to complete the project. Any delay in a critical task results in a project delay.

Question 8: What is the primary deliverable of the project identification and selection phase? (5 marks)

The key deliverable is the Baseline Project Plan (BPP). It includes a overview of the project scope, feasibility assessments, schedule, cost estimates, and risks. This provides the basis for project evaluation and approval.

Question 9: Which feasibility assessment evaluates the development organization's ability to construct the proposed system? a) Economic Feasibility b) Operational Feasibility c) Technical Feasibility d) Schedule Feasibility. Explain your choice. (5 marks)

c) Technical Feasibility – Evaluates whether the organization has the technical resources and expertise to build and support the proposed system.

Question 10: What is the difference between tangible and intangible benefits? Provide some examples. (6 marks)

Tangible benefits are quantifiable

- reduced labor costs
- increased productivity

Intangible benefits are harder to measure

- improved morale
- better decision-making

Question 11: Describe the concept of "Incremental Commitment" in project planning. (6 marks)

Incremental Commitment is the continuous reassessment of a project after each phase. It involves reviewing and reassessing the project at key milestones before committing further resources. It manages risk and ensures alignment.

Question 12: What is a key disadvantage of prototyping as a method for determining system requirements? (5 marks)

A major drawback is that users may mistake the prototype for the final system, leading to unrealistic expectations. It can also result in poor documentation and limited scalability.

Question 13: Explain the main steps involved in performing requirements determination. (6 marks)

1. Collect information (interviews, observation, document analysis)
2. Analyze current system
3. Define functional/non-functional requirements
4. Use models (DFDs, ERDs)
5. Validate with users
6. Document and prioritize

Question 14: Discuss the advantages and disadvantages of using interviews to gather system requirements. (6 marks)

Some of the advantages and disadvantages of using interviews to gather system requirements:
Advantages:

- Provide rich, qualitative insights by allowing users to express needs, preferences, and frustrations in their own words.
- Allow for follow-up questions and clarification, helps the analyst explore issues in-depth and uncover hidden requirements.

Disadvantages:

- Time-consuming to schedule and conduct, especially across multiple stakeholders.
- Risk of biased, incomplete, or inaccurate responses if users are unsure of what they need or misunderstand questions.

Question 15: Compare traditional and modern methods of determining system requirements, focusing on their applicability, strengths, and weaknesses. Ensure to use specific methods such as JAD, prototyping, and direct observation in your discussion. (10 marks)

Traditional methods like interviews, observation, and document analysis provide structured and well-documented insights. They are more suitable when processes are stable, but can be slow and can rely heavily on user recall or outdated documentation.

Modern methods such as JAD bring stakeholders together in more focused sessions to define requirements through collaboration. Prototyping offers early visual models of the system to clarify requirements, this is especially helpful when the users struggle to articulate their needs. Agile or RAD approaches enable fast iterations and frequent feedback but require consistent user involvement.