1. **Responsibility of System Analyst (2)**

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A **System Analyst** connects business needs with technical solutions.

**Main responsibilities:**

**Requirement gathering:** Understand what users need from the system.

**System design help:** Plan how the system should work.

**Communication:** Act as a link between users and developers.

**Problem-solving:** Suggest improvements in the current system.

Example: In a school system, the analyst talks to teachers and explains their needs to developers.

1. **Explain the purpose of Data Flow Diagram and how it helps in system analysis (3)**

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A **Data Flow Diagram (DFD)** shows how data moves inside a system.

**Purpose:**

To **visually explain** how data flows between processes, users, and data stores.

Helps in **understanding system structure** clearly before building.

**How it helps:**

Makes complex systems easier to understand.

Helps to find mistakes or missing parts early.

Supports communication between analyst and developers.

>>Example: In a library system, DFD can show how "Issue Book" works — from user input to book record update.

1. **Summarize a basic system for a Library Management System using system design stages. Briefly describe each stage from Preliminary Design to Review (4)**

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Here is a basic summary of a **Library Management System** using **System Design Stages**:

**Preliminary Design**

Plan the overall structure.

Decide main modules like book search, issue, return.  
>>Example: Plan to include login, book list, and member database.

**Detailed Design**

Design every small part of the system.

Define inputs, outputs, and actions of each module.  
>>Example: What happens when a book is issued or returned.

**Interface Design**

Plan how users will interact with the system.

Design screens, buttons, and navigation.  
>>Example: User clicks "Issue Book", system shows issue form.

**Database Design**

Decide how data will be stored and connected.

Create tables for books, members, transactions.  
>>Example: "Book" table has title, author, and status.

**System Architecture**

Choose hardware, software, and security setup.  
>>Example: Use a local server with user access control.

**Review**

Check the design to ensure all requirements are covered.  
>>Example: Make sure book return and fine calculation are included.