

Analytical Skills of a System Analyst: Answers for Pretest/Posttest

1. List 9 main characteristics of a system.

9 main characteristics of any system are:

- input,
- output,
- boundary,
- components,
- relationships,
- constraints,
- purpose,
- interfaces, and
- environment.

2. Describe a course Web site as a system – provide brief explanation for exact component of such a system.

Course Web site as a system:

1. Components - course syllabus, timetable, announcements, PPT slides with lecture notes, communications tools, homework assignments, downloadable software, examples of course projects, etc.
2. Relations - one-to-one correspondence between course timetable and classes, deadlines for submissions of homework, etc.
3. Boundary - this web site works only for one course and registered students
4. Purpose - gain knowledge in a specific area
5. Environment - particular university or college
6. Interfaces - Internet-based interface (GUI)
7. Input - requests from students and instructor (open file, print file, etc.)
8. Output - requested specific information (specific homework assignment)
9. Constraints - limited to a particular class, a particular college/university

3. Describe a university or college as a system – provide brief explanation for each component of such a system.

Examples may include but are not limited to:

- 1) Some inputs: new students, new faculty, new employees, supplies, or funding.
- 2) Some outputs: graduating or transferring students, faculty and other employees who take jobs elsewhere, knowledge, or inventions.
- 3) Boundary for a university: example may include campus with satellite colleges/departments
- 4) Components of a university: academic colleges and departments, buildings, classrooms, labs; academic functions such as registration and advising.
- 5) Relationships student to student, faculty to student, department to college, etc.

- 6) Constraints: funding, space (land), parking, number of students, etc,
- 7) Interfaces: university web sites, phones, faxes, newsletters, etc.
- 8) Purpose: produces top-quality graduates.
- 9) Environment: community for community colleges, state or set of states for local (regional) universities.

4. List 4 main skills of a system analysts and briefly explain each skill.

- Analytical Skills** ability to see things as systems, identify, analyze, and solve problems in an optimal way for a specific organization.
- Technical Skills** ability to understand how computers, data networks, databases, operating systems, etc. work together, as well as their potentials and limitations.
- Management Skills** include organization's resource management, project management (people and money), risk management, and change management.
- Communication Skills** include effective interpersonal communication (written, verbal, visual, electronic, face-to-face conversations, presentations in front of groups), listening, group facilitation skills.

5. List most important system concepts and briefly explain each of them.

They include:

- 1. Open system:** a system that interacts freely with its environment, taking input and returning output.
- 2. Closed system:** a system that is cut off from its environment and does not interact with it.
- 3. Modularity** is dividing a system into parts/chunks/modules of relatively uniform size.
- 4. Decomposition** is the process of breaking down a system into its component parts.
- 5. Coupling** is the extent to which subsystems are dependent on each other

**Technical, Managerial, Communication Skills of a System Analyst:
Answers for Pretest/Posttest**

1. What kind of technical skills are needed for systems analysts?

Technical skills needed by systems analysts include but are not limited to:

- 1. Computers (PCs, mini, mainframes, etc.)

2. Computer networks (LAN, WAN, VPNs, administration, security, etc.)
3. Operating systems (Unix, Mac/OS, Windows)
4. Data Exchange Protocols (ftp, http, etc.)
5. Programming languages (C++, Java, XML, etc.)
6. Software applications (Office, project managements, etc.)
7. Information systems (databases, MISs, decision support systems)
8. System development tools and environments (such as report generators, office automation tools, etc.)

2. What kind of managerial skills are needed for systems analysts?

Managerial skills needed by systems analysts include but are not limited to:

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|------------------------|---|
| 1. resource management | effectively managing the project's resources, including time, equipment, hardware, software, people, money, etc., |
| 2. project management | determining the tasks and resources needed for a project and how they are related to each other, |
| 3. risk management | identifying and minimizing risks, |
| 4. change management | managing the system's (organization's) transition from one state to another |

3. What kind of communication skills are needed for systems analysts?

Communication skills needed by systems analysts include:

1. clear and effective interpersonal communication, whether written, verbal, or visual, from writing reports to face-to-face conversations, to presentations in front of groups;
2. listening (accepting opinions and ideas from other project team members),
3. group facilitation or formal technical reviews (FTR) skills:
 - setting an agenda,
 - leading discussions,
 - involving all parties in the discussion,
 - summarizing ideas,
 - keeping discussions on the agenda,
 - etc.

4. What are characteristics of a high-performance system analysis and design team?

Characteristics of high-performance team:

1. shared vision or goal
2. sense of team identity
3. result-driven structure
4. competent team members
5. commitment to the team
6. mutual trust
7. interdependence among team members
8. effective communication
9. sense of autonomy
10. small team size
11. high level of enjoyment