

# Enterprise Systems Engineering

## BS-SE (13)

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### Question 1:

**Answer:** An enterprise is a complex, socio-technical system that comprises interdependent resources of people, information, and technology that must interact with each other and their environment in support of a common mission.

Enterprise Design Team:

**1. Business System Analyst:** Business Systems Analyst is a person who identifies and analyzes business problems, and generates system requirements.

Skills required for a Business system analyst: Expert in respected domain e.g accounting and knowledge of technology that might be used in that domain.

**2. Enterprise Architect:** Enterprise architect is a person who develops a holistic view of the enterprise's strategy, process, information and organizational structure, usually delivered as the enterprise architecture.

**3. System Architect:** System architect is a person who creates the high level design of a technical system. System means a subsystem of the enterprise such as an ERP system or the accounting system.

**4. Project manager:** Project Manager is the person responsible for accomplishing all project objectives.

Responsibilities:

- Identifying all team members
- Planning the project
- Supervise team members
- Monitor project progress
- Project deliverables

**5. System Designer:** Who designs one or more parts of the system. A technical person who generates the specifications for how the system will work.

**6. Change Manager:** Change Manager is the person responsible for the change management plan.

Responsibilities:

- Plans the change
  - Supervises the change management sub-team
  - Monitors the progress of the change
  - Ensuring successful execution of the change management plan.
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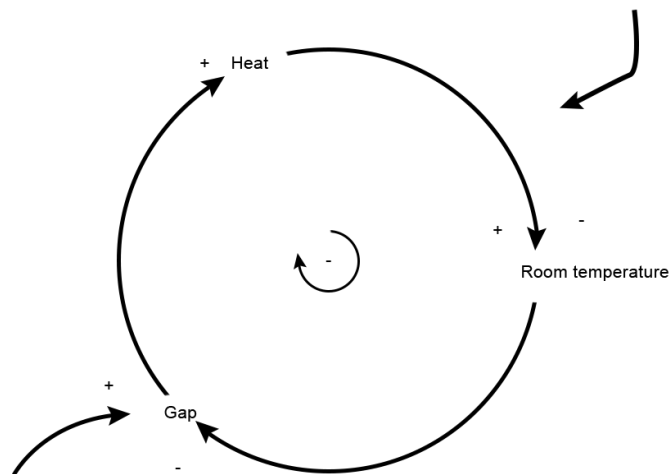
**Question 2:**

**a) Answer:** Causal Loop Diagrams: Depicts a system as an interrelated system of variables. The purpose of causal loop diagrams to depict beliefs about the causal structure of the system.

**Elements:**

Node: system variables

Arc: Relationship between variables.



Diagram

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**b) Answer:**

A model is an abstract representation of a real-world system that emphasizes some aspects of the system while excluding others.

**Why we model:** To reduce complexity of understanding or interacting with the system The suppression of irrelevant details help us achieve that.

Benefits:

- **Visualization:** Processes, information, organization structure.
  - **Communication:** Help us communicate about the systems, their analysis, and design.
  - **Design:** Process design, information design, and other aspects.
  - **Analysis:** Can be used to analyze design alternatives. It's a very economic way of analyzing an enterprise system
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**Question 3:**

**a) Answer:**

**Equifinality:** With different inputs and with different internal processes, an enterprise can reach its goals. Two enterprises can reach the same outcome by using different inputs and/or different processes.

**Purposefulness:** Enterprises have purposes which are defined in the mission statement. The people in the enterprise have Purpose, Individual goals. There is a rationale behind actions, Rationale depends on environment: Influence of business and social culture on people's actions.

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**b) Answer:**

**Reductionist approach:** Divide, solve and combine, Does not perform well when there is significant interaction among the parts of the system.

-----**The End**-----