# Chapter 1: Introduction to System

## MCQs from the Unit "Introduction to System":

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## EXERCISE MCQs with Answers

**1. What is the primary function of a system?**
a) To work independently
b) To achieve a common goal ✓
c) To create new systems
d) To provide entertainment

**2. What is one of the fundamental concepts of any system?**
a) Its size
b) Its objective ✓
c) Its age
d) Its price

**3. What is an example of a simple system?**
a) A human body
b) A computer network
c) A thermostat regulating temperature ✓
d) The Internet

**4. What type of environment remains unchanged unless the system provides an output?**
a) Dynamic
b) Static ✓
c) Deterministic
d) Non-deterministic

**5. What are the basic components of a system?**
a) Users, hardware, software
b) Objectives, components, environment, communication
c) Inputs, outputs, processes ✓
d) Sensors, actuators, controllers

**6. What concept does the theory of systems aim to understand?**
a) Hardware design
b) System interactions and development over time ✓
c) Software applications
d) Network security

**7. What role does the Operating System (OS) play in a computer?**
a) It performs calculations and executes instructions
b) It temporarily stores data and instructions for the CPU
c) It receives input from interface components and decides what to do with it ✓
d) It provides long-term storage of data and software

**8. Which of the following describes the Von Neumann architecture's main characteristic?**
a) Separate memory for data and instructions
b) Parallel execution of instructions
c) Single memory store for both program instructions and data ✓
d) Multiple CPUs for different tasks

**9. What is a disadvantage of the Von Neumann architecture?**
a) Complex design due to separate memory spaces
b) Difficult to modify programs stored in memory
c) Bottleneck due to single memory space for instructions and data ✓
d) Lack of flexibility in executing instructions

**10. Which of the following transports data inside a computer among different components?**
a) Control Unit
b) System Bus ✓
c) Memory
d) Processor

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# Final Answer Key

1 → b - 2 → b - 3 → c - 4 → b - 5 → c - 6 → b - 7 → c - 8 → c - 9 → c - 10 → b

# Additional MCQs with Answers

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## 1. Definition & Characteristics of a System

1. Which of the following best defines a system?
   a) A random collection of objects
   b) A group of components working together to achieve objectives ✓
   c) An independent device without purpose
   d) A physical machine only
2. A system must always have:
   a) Components, boundary, objective ✓
   b) Random inputs
   c) Price tag
   d) Unlimited size
3. Which characteristic ensures a system achieves something?
   a) Feedback
   b) Objective ✓
   c) Storage
   d) Age
4. Which of the following is **not** a characteristic of a system?
   a) Interconnected parts
   b) Defined objective
   c) Infinite resources ✓
   d) Boundary
5. System boundaries are important because they:
   a) Define what is inside and outside the system ✓
   b) Increase system complexity
   c) Provide entertainment
   d) Eliminate the need for objectives

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## 2. Components of a System

1. Which is the correct order of system functioning?
   a) Process → Output → Input
   b) Input → Process → Output ✓
   c) Output → Storage → Input
   d) Control → Storage → Input
2. What stores information for future use in a system?
   a) Input
   b) Storage ✓

c) Control
d) Output

3. Which part ensures the system works towards objectives?
   a) Input
   b) Control ✓
   c) Process
   d) Output
4. An ATM machine is an example of a system because it has:
   a) Just hardware
   b) Input, process, output, and control ✓
   c) Only software
   d) Only objective
5. Which system component adjusts performance using feedback?
   a) Input
   b) Output
   c) Control ✓
   d) Storage

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## 3. Types of Systems

1. Which is an example of a natural system?
   a) Solar system ✓
   b) Banking system
   c) Computer network
   d) Traffic lights
2. Which is an artificial system?
   a) Human digestive system
   b) Railway reservation system ✓
   c) Ecosystem
   d) Ocean tides
3. A thermostat regulating temperature is an example of:
   a) Open system
   b) Closed system ✓
   c) Natural system
   d) Non-deterministic system
4. Which type of system interacts with its environment?
   a) Open system ✓
   b) Closed system
   c) Static system
   d) Natural system
5. Which is an example of a complex system?
   a) Calculator
   b) Internet ✓

c) Light switch
d) Doorbell

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## 4. System Environment & Boundaries

1. The environment of a system refers to:
   a) Everything outside its boundary ✓
   b) The system components
   c) Objectives only
   d) System memory
2. Which type of environment changes only when the system acts on it?
   a) Static ✓
   b) Dynamic
   c) Deterministic
   d) Open
3. The school system and its surrounding society illustrate:
   a) System interaction with environment ✓
   b) Closed boundary
   c) Static system
   d) Isolated components
4. Which term means “where the system ends and outside begins”?
   a) Feedback
   b) Boundary ✓
   c) Objective
   d) Storage
5. If the environment changes continuously, it is called:
   a) Static
   b) Dynamic ✓
   c) Closed
   d) Simple

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## 5. System Modeling & Abstraction

1. Why do we create system models?
   a) To reduce cost only
   b) To simplify reality and focus on essentials ✓
   c) To add complexity
   d) To replace actual systems
2. A block diagram is used to:
   a) Represent system components and their relationships ✓
   b) Decorate system drawings

c) Remove system objectives
d) Replace boundaries

3. Abstraction in system modeling means:
   a) Ignoring irrelevant details ✓
   b) Adding extra details
   c) Creating confusion
   d) Changing objectives
4. Which is the first step in system modeling?
   a) Define objectives ✓
   b) Draw arrows
   c) Add storage
   d) Remove environment
5. A traffic signal model is useful because:
   a) It reduces traffic
   b) It shows input-process-output in simple form ✓
   c) It stores vehicles
   d) It is a natural system

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## 6. Computer as a System (Von Neumann, OS, System Bus)

1. Which architecture is followed by most computers?
   a) Harvard
   b) Von Neumann ✓
   c) Fibonacci
   d) Open Source
2. The main feature of Von Neumann architecture is:
   a) Separate memory for data and instructions
   b) Single memory for data and instructions ✓
   c) Parallel processors
   d) Infinite storage
3. The Operating System acts as:
   a) A manager between user and hardware ✓
   b) Only a memory unit
   c) Only hardware
   d) A data cable
4. The Von Neumann bottleneck is caused by:
   a) A single pathway for data and instructions ✓
   b) Multiple CPUs
   c) Complex software
   d) High processing speed
5. The System Bus is responsible for:
   a) Storing programs
   b) Transferring data among components ✓

c) Performing calculations
d) Controlling objectives

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## ✓ Answer Keys

### 1. Definition & Characteristics of a System

1 → b - 2 → a - 3 → b - 4 → c - 5 → a

### 2. Components of a System

1 → b - 2 → b - 3 → b - 4 → b - 5 → c

### 3. Types of Systems

1 → a - 2 → b - 3 → b - 4 → a - 5 → b

### 4. System Environment & Boundaries

1 → a - 2 → a - 3 → a - 4 → b - 5 → b

### 5. System Modeling & Abstraction

1 → b - 2 → a - 3 → a - 4 → a - 5 → b

### 6. Computer as a System (Von Neumann, OS, System Bus)

1 → b - 2 → b - 3 → a - 4 → a - 5 → b