1. A university wants to create a system to manage student enrollment. The system should allow students to register for courses, view their grades, and pay fees. Professors should be able to upload grades, and the administrator should manage course schedules.

Which of the following is the best representation of an actor in this scenario?  
A. Student  
B. Course Schedule  
C. Enrollment Database  
D. Grade Report

**Correct Answer:** A. Student

1. In a use-case diagram for an online shopping platform, a customer can add items to the cart, place an order, and track their shipment. The system also notifies the delivery agent for shipping.

Which action is **not** considered a use case in this scenario?  
A. Add items to the cart  
B. Place an order  
C. Notify the delivery agent  
D. Database backup

**Correct Answer:** D. Database backup

In a library management system, members can borrow books, return books, and search the catalog. The librarian manages inventory and member records.

1. What type of relationship might exist between the use cases "Borrow Books" and "Return Books"?  
   A. Extend  
   B. Include  
   C. Generalization  
   D. No relationship

**Correct Answer:** D. No relationship

1. A bank wants to create an ATM system. Customers should be able to withdraw cash, check their balance, and change their PIN.

What is the role of the "ATM" in the use-case diagram?  
A. Actor  
B. Use Case  
C. System Boundary  
D. None of the above

**Correct Answer:** C. System Boundary

1. A use-case diagram for an e-learning platform includes "Take Quiz" as a use case. This use case reuses functionality from "View Course Materials".

What type of relationship should be used between these use cases?  
A. Association  
B. Extend  
C. Include  
D. Generalization

**Correct Answer:** C. Include

1. In a hotel booking system, guests can search for rooms, make reservations, and cancel reservations. The manager can update room pricing and availability.

Which actor is **not** involved in the use-case "Search for Rooms"?  
A. Guest  
B. Manager  
C. Administrator  
D. System

**Correct Answer:** B. Manager

1. A food delivery system has use cases such as "Place Order", "Track Order", and "Cancel Order". The "Track Order" use case is only executed if the "Place Order" use case is completed.

What type of relationship exists between "Place Order" and "Track Order"?  
A. Include  
B. Extend  
C. Association  
D. Generalization

**Correct Answer:** B. Extend

1. A library management system includes the use cases "Issue Book", "Return Book", and "Calculate Fine". The "Calculate Fine" use case is triggered only if the book is returned late.

What is the relationship between "Return Book" and "Calculate Fine"?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** B. Extend

1. In an online shopping system, the use case "Checkout" always requires the functionality of "Calculate Total Amount".

What is the relationship between "Checkout" and "Calculate Total Amount"?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** A. Include

1. A restaurant reservation system has the following use cases:

* "Make Reservation"
* "Cancel Reservation"
* "Send Confirmation Email"

The "Send Confirmation Email" use case is always executed as part of "Make Reservation".

What type of relationship exists between "Make Reservation" and "Send Confirmation Email"?  
A. Include  
B. Extend  
C. Generalization  
D. No Relationship

**Correct Answer:** A. Include

1. An online travel booking system has the following use cases:

* "Search Flights"
* "Book Flight"
* "Add Travel Insurance"

The "Add Travel Insurance" use case is optional and only applies if the user chooses to include insurance during "Book Flight".

What type of relationship exists between "Book Flight" and "Add Travel Insurance"?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** B. Extend

1. An e-commerce system includes the use cases:

* "Browse Products"
* "Add to Cart"
* "Apply Discount"

"Apply Discount" is a reusable functionality that can be used in multiple processes, such as "Add to Cart" or "Checkout".

What type of relationship exists between "Apply Discount" and other use cases?  
A. Include  
B. Extend  
C. Generalization  
D. Dependency

**Correct Answer:** A. Include

1. In a student portal, the use cases include:

* "Register for Course"
* "Make Payment"
* "Apply for Financial Aid"

The "Apply for Financial Aid" use case is optional and is only executed if a student chooses this option during "Make Payment".

What type of relationship exists between "Make Payment" and "Apply for Financial Aid"?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** B. Extend

1. A hospital management system has the following use cases:

* "Schedule Appointment"
* "Send Appointment Reminder"
* "Verify Patient Details"

The "Verify Patient Details" use case is mandatory for "Schedule Appointment", while "Send Appointment Reminder" is optional.

What type of relationships exist between these use cases?  
A. Include between "Verify Patient Details" and "Schedule Appointment"; Extend between "Send Appointment Reminder" and "Schedule Appointment"  
B. Extend between "Verify Patient Details" and "Schedule Appointment"; Include between "Send Appointment Reminder" and "Schedule Appointment"  
C. Association for all relationships  
D. Include for all relationships

**Correct Answer:** A.

1. A banking system includes the use cases:

* "View Account Balance"
* "Transfer Funds"
* "Authenticate User"

"Authenticate User" is required before any transaction, including viewing the account balance or transferring funds.

What type of relationship exists between "Authenticate User" and the other two use cases?  
A. Include  
B. Extend  
C. Generalization  
D. Dependency

**Correct Answer:** A. Include

1. In a ticket booking system for a movie theater, the use cases include:

* "Select Movie"
* "Reserve Seat"
* "Make Payment"
* "Apply Discount Code"

The "Apply Discount Code" use case can be triggered only during "Make Payment".

What type of relationship exists between "Make Payment" and "Apply Discount Code"?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** B. Extend

1. An inventory management system includes the following use cases:

* "Add Item to Inventory"
* "Update Item Details"
* "Verify Stock Availability"

"Verify Stock Availability" is a reusable use case that can be used by both "Add Item to Inventory" and "Update Item Details".

What type of relationship should be used between "Verify Stock Availability" and the other two use cases?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** A. Include

1. In an online learning platform, the use cases include:

* "Enroll in Course"
* "Access Course Materials"
* "Complete Assessment"

"Access Course Materials" is only available after successfully "Enroll in Course".

What type of relationship exists between "Enroll in Course" and "Access Course Materials"?  
A. Include  
B. Extend  
C. Generalization  
D. Association

**Correct Answer:** A. Include

1. In a travel booking system, the use cases are:

* "Book Flight"
* "Book Hotel"
* "Create Travel Itinerary"

"Create Travel Itinerary" is a general activity that combines "Book Flight" and "Book Hotel".

What type of relationship best describes the relationship between "Create Travel Itinerary" and the other two use cases?  
A. Generalization  
B. Include  
C. Extend  
D. Association

**Correct Answer:** B. Include

1. Which UML diagram is used to model the structure of a system by showing its classes, attributes, operations, and relationships?  
   A. Class Diagram  
   B. Activity Diagram  
   C. Sequence Diagram  
   D. Component Diagram

**Correct Answer:** A. Class Diagram

1. A diagram shows the flow of control between objects in a specific scenario. It includes lifelines, messages, and activations.

What type of UML diagram is this?  
A. Sequence Diagram  
B. Use-Case Diagram  
C. State Diagram  
D. Communication Diagram

**Correct Answer:** A. Sequence Diagram

1. In which UML diagram would you model the dynamic behavior of a system by illustrating events, states, and transitions?  
   A. State Diagram  
   B. Activity Diagram  
   C. Class Diagram  
   D. Sequence Diagram

**Correct Answer:** A. State Diagram

1. Which UML diagram focuses on the logical flow of activities in a system and represents control flow and data flow?  
   A. Activity Diagram  
   B. Use-Case Diagram  
   C. Sequence Diagram  
   D. Deployment Diagram

**Correct Answer:** A. Activity Diagram

1. A development team uses a UML diagram to show the physical deployment of artifacts (e.g., files, databases) on hardware nodes.

What type of UML diagram is this?  
A. Deployment Diagram  
B. Component Diagram  
C. Package Diagram  
D. Interaction Diagram

**Correct Answer:** A. Deployment Diagram

1. Which UML diagram is best suited for modeling the interaction between a system and its external actors?  
   A. Use-Case Diagram  
   B. Class Diagram  
   C. State Diagram  
   D. Deployment Diagram

**Correct Answer:** A. Use-Case Diagram

1. A development team is designing a UML diagram that shows the static organization of system components, such as classes grouped into packages.

Which UML diagram should they use?  
A. Package Diagram  
B. Component Diagram  
C. Deployment Diagram  
D. Class Diagram

**Correct Answer:** A. Package Diagram

1. Which UML diagram focuses on interactions among multiple objects, describing the relationships between them using links and messages?  
   A. Communication Diagram  
   B. Sequence Diagram  
   C. Class Diagram  
   D. Activity Diagram

**Correct Answer:** A. Communication Diagram

1. A software architect is visualizing the modular structure of a system, showing components like modules and libraries along with their dependencies.

Which UML diagram would be most appropriate?  
A. Component Diagram  
B. Deployment Diagram  
C. Package Diagram  
D. State Diagram

**Correct Answer:** A. Component Diagram

1. What is the primary purpose of a **Composite Structure Diagram** in UML?  
   A. To describe the internal structure of a class and collaborations within it  
   B. To represent the physical deployment of artifacts  
   C. To model the flow of activities in a system  
   D. To show the sequence of messages between objects

**Correct Answer:** A.

1. Which UML diagram is used to model time-ordered interactions among objects for a single use case?  
   A. Sequence Diagram  
   B. Activity Diagram  
   C. Use-Case Diagram  
   D. Timing Diagram

**Correct Answer:** A. Sequence Diagram