EduTrack Ltd. has been contracted to design a database system for a university's **student management system**. The system should store and manage information related to students, courses, instructors, departments, and grades. The development team is at the initial phase where they are selecting the appropriate **data model** and deciding how to structure the **entities and attributes**. They choose to implement a **relational model** to represent relationships such as:

→ A student enrolls in multiple courses.
→ Each course is offered by a department.
→ Instructors can teach multiple courses.

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During the design, the team also classifies **entities** (like student, course, instructor) and their **attributes** (e.g., student name, course code, GPA), assigning suitable **data types** for each.

1. What is a Database Management System (DBMS)? Briefly explain how it helps in managing data efficiently in the context of EduTrack's student management system. **(5)**
2. Identify which data model is most appropriate for this scenario and explain why. How does the relational model help represent the relationships between students, courses, and instructors? **(5)**
3. List at least three entities from the case and identify their attributes. Classify the attributes as simple, composite, derived, or multivalued, and specify appropriate data types for each. **(5)**