**Jaypee Institute of Information Technology**

**Database Systems & Web**

**15B11CI312**

**Tutorial – 3 (ER Diagram)**

**Q1.** A university registrar’s office maintains data about the following entities:

1. Courses, including number, title, credits, syllabus, and prerequisites;
2. Course offerings, including course number, year, semester, section number,

instructor(s), timings, and classroom;

1. students, including student-id, name, and program;
2. instructors, including identification number, name, department, and title.
3. Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled.

Construct an E-R diagram for the registrar’s office. Document all assumptions that you make about the mapping constraints.

**Q2.** FlyWheels is a courier company transporting different items from one location to another. Shipped items can be characterized by item number (unique), shipment date, weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the FlyWheels system at a single retail center. Retail centers are characterized by their type, uniqueID, and address. Shipped items make their way to their destination via one or more standard FlyWheels transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique schedule Number, a type (e.g, flight, truck), and a delivery Route. Create an Entity Relationship diagram that captures this information. Be certain to indicate identifiers and cardinality constraints.

**Q3.** Consider the following E-R diagram in the figure below. Find the minimum number of tables required for converting this ER diagram into relational model.

