Exercise 1

A university DB contains information about professors (identified by SIN) and courses (identified by course ID). Professors teach courses; each of the following situations concerns the Teaches relationship set.

List all candidate keys of the Teaches relationship set.

a. Professors can teach the same course in several semesters, and each offering must be recorded.

ANS:-- professor: with SIN underlined as the primary key,
- course: with CID underlined as the primary key,
- semester: with SID underlined as the primary key.

The candidate key of the teachesrelationship: {SIN, COURSE_ID, SEMESTER_ID}.

b. Professors can teach the same course in several semesters, but only the most recent such offering needs to be records.

ANS:-The key of teaches is {SIN, COURSE_ID}.

Assume the above Situation (b) applies in all subsequent situations.

List all the keys possible in each of the following situations.

a. Every professor teaches a course, and every course is taught by some professor.

ANS:-Total participation from professors and total participation from courses.Because it is still m-to-m, the candidate key remains are {SIN, COURSE_ID}.

b. Every professor teaches exactly one course, and every course is taught by exactly one professor.

ANS:-This time the relationship is 1-to-1. There are now two candidate keys are either {SIN} or {COURSE_ID}.