Homework – II

Exercise – 1:

a) There are two smith's in name column; and there are two 19's and 18's in age column. Therefore, based on the instance of being legal: name and age are non-candidate key.
b) sid, login and gpa can be a candidate key based on the instance of being legal. Even though there is a possibility that more than one student can have the same gpa, but based on the instance of legal, gpa might be a candidate key.

Exercise – 2:

a.

sid is foreign keys in enrolled references for students
cid is foreign keys in enrolled references for courses

fid is foreign keys in enrolled references for faculty
cid is foreign keys in enrolled references for courses

cid is foreign keys in enrolled references for courses
rno is foreign keys in enrolled references for rooms

b. Grade can be an example of constraint that we might enforce to restrict from 'A' to 'F'. This helps from entering grades like 'G'.

Exercise – 3:

CREATE TABLE Musician(ssn int, name varchar(20), primary key(ssn));

CREATE TABLE Instrument(instrId int, dname varchar(20), Key_ins varchar(20),
primary key(instrId));

CREATE TABLE plays(ssn int, instrId int, primary key(ssn, instrId),
foreign key(ssn) references Musician(ssn), foreign key(instrId) references Instrument(instrId));

CREATE TABLE producer_Album (albumIdentifier int, ssn int, copyrightDate date, speed int,
title varchar(30), primary key(albumIdentifier), foreign key(ssn) references Musician(ssn));

CREATE TABLE Songs_appears(songId int, albumIdentifier int, title varchar(20),
author varchar(20), primary key(songId),
foreign key(albumIdentifier) references producer_Album(albumIdentifier));

CREATE TABLE perform(ssn int, songId int, primary key(ssn, songId),
foreign key(ssn) references Musician(ssn),
foreign key(songId) references Songs_appears(songId));

CREATE TABLE place(address varchar(20), primary key(address));

CREATE TABLE home_contact(phone_no varchar(20), address varchar(20),
primary key(phone_no), foreign key(address) references Place(address));

CREATE TABLE Lives(ssn int, phone_no varchar(20),
primary key(ssn, phone_no), foreign key(ssn) references Musician(ssn),
foreign key(phone_no) references home_contact(phone_no));

Exercise – 4:

CREATE TABLE Test(FAA_no:int, name:varchar(20), score:int, primary key (FAA_no));

CREATE TABLE Plane_type (reg_no:int, model_no:int, primary key(reg_no),
foreign key(model_no) references Model);

CREATE TABLE Test_info(FAA_no:int, ss:int, reg_no:int, hours:int, date:date, score:int,
primary key (ssn, reg_no, FAA_no), foreign key(reg_no) references Plane_type,
foreign key(FAA_no) references Test, foreign key(ssn) references Employees);

CREATE TABLE Model(model_no:int, capacity:int, weight:int, primary key (model_no));

CREATE TABLE Expert(ssn:int, model_no:int, primary key (ssn, model_no),
foreign key (ssn) references Technician_emp, foreign key (model_no) references Model);

CREATE TABLE Employees(ssn:varchar(20), union_mem_no:int, primary key (ssn));

CREATE TABLE Technician_emp(ssn:int, name:varchar(20), address:varchar(20),
phone_no:varchar(20), salary:float, primary key (ssn), foreign key (ssn) references Employees);

CREATE TABLE Traffic_control_emp(ssn:int, exam_date:date, primary key (ssn),
foreign key (ssn) references Employees);