

Question 1:

- a) Name and age are example of attributes that are not candidate keys because they can have duplicate values, therefore there's no way we can uniquely identify them
- b) Sid can be used to uniquely identify each student.

Question 2:

- a)
 - i) Enrolled(Foreign Key (sid) ref Students, Foreign Key(cid) ref courses)
 - ii) Teaches(Foreign Key (fid) ref Faculty, Foreign Key (cid) ref Courses)
 - iii) Meets_in(Foreign Key (cid) references Courses, Foreign Key (rno) references Rooms)
- b) GPA Attribute in the Student table where the condition is $0.0 \leq n \leq 4.0$. Gpa cannot be less than 0.0 or more than 4.0

Question3:

Professor (ssn: int, age: int, rank: varchar (4), specialty: varchar (20) Primary key (ssn))

Dept (DNO: int, DNAME: varchar (10), office: varchar (20) , pssn: int
primary key (age), foreign key (PSSN) references Professor Not Null)

Work Dept (SSN: int, dro: int, pc- time: float, Primary Key (SSN, DNO), foreign key (P.SSN)
references Professor, foreign key (dro) references Dept)

Graduate (SSN: int, age: int, deg-prog: varchar (20),
name: varchar (40), advisor - ssn: int, dro: int, primary key (SSN),
foreign key (Advisor - SSN) references Graduate not null,
foreign key (dno) reference Dept Not Null)

Project (pid: int, sponsor: varchar (20), start - date: date, end- date: date, budget: float , p.ssn: int
primary key (pid) foreign key (p.ssn) references Professor not Null)

Work_In (pid: int, ssn:int, primary key (pid, ssn),
Foreign Key (pid) references Project, Foreign Key (p.ssn) references Professor)

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Work_project (SSN: int, GSSN: int, PID: int, PSSN: int, primary key (PSSN, GSSN, pid), foreign key (GSSN) references Graduate , Foreign Key (PID) references Project, Foreign Key (PSSN) referees Professor Not NULL)

Question 4:

Doctor (ply-ssn: int, name: varchar (50) , specialty: varcher (20), exp-years: int, primary key (phy-ssn))

Patient (ssn: int primary key, age: int, name: varchar(40), address: varchar (40), phy-ssn: int, Foreign key (phy-ssn) refernces Doctor NOT NULL)

Pham- co name (name: varcher (20), phone-num: int, primary_key (name))

Drug (trade_name: varchar(20), formula: varchar(100), pname: varchar(20), primary key(trade_name, pname), foreign key (pname) ref Pharm_co)

Prescription (date: date, quantity: int, ssn: int, ply- ssn: int, trade-name: varchar(20), pname: varcher (20) , primary key (ssn, phy-ssn, trade name, prone) , foreign key (p.ssn) references Patient, Foreign hay (phy-ssn) references Doctor, foreign key (trade-name, prame) references Drug)

Pharmacy(name: varchar(20),address: varchar (50), plone- num:int, Primary Key (name, address, phone))

Sell(name: varchar(20), trade_name: varchar(20), pname: varchar(20), price: float, Primary Key (name, trade_name, pname), foreign key (name) ref Pharmacy, foreign key (trade_name, pname) ref Drug)

Contact(pname: varchar(20), cname: varchar(20), start_date: date, end_date: date, text: varchar (1000), supervisor: varchar(50), Primary Key (pname, cname, text), foreign key(pname) references Pharmacy, foreign key (cname) references pharm_co)