1. Write appropriate SQL DDL statements for declaring the LIBRARY relational database schema. (21 points)

Answer:

**BOOK Table**

create table BOOK (Book\_id char(10),title varchar(20),Publisher\_name varchar(20)not null,primary key(Book\_id),foreign key(Publisher\_name) references PUBLISHER);

**BOOK\_AUTHORS Tables**

create table BOOK\_AUTHORS (Book\_id char(10) not null, Author\_name varchar(20)not null,primary key(Book\_id, Author\_name));

**PUBLISHER Table**

create table PUBLISHER (Name char(20)not null, Address varchar(20), Phone int, primary key(Name));

**BOOK\_COPIES Table**

create table BOOK\_COPIES (Book\_id char(10) not null,Branch\_id char(10) not null,No\_of\_copies int,primary key(Book\_id, Branch\_id),foreign key(Book\_id) references BOOK,foreign key(Branch\_id) references LIBRARY\_BRANCH);

**BOOK\_LOANS Table**

create table BOOK\_LOANS(Book\_id char(10) not null ,Branch\_id char(10) not null,Card\_no char(5) not null ,Date\_out numeric(8,0),Due\_date numeric(8,0),primary key(Book\_id, Branch\_id, Card\_no),foreign key(Book\_id) references BOOK,foreign key(Branch\_id) references LIBRARY\_BRANCH,foreign key(Card\_no) references BORROWER);

**Linrary\_Branch**

create table LIBRARY\_BRANCH (Branch\_id char(10) not null, Branch\_name varchar(20) not null, Address varchar(20), primary key(Branch\_id));

**Borrower Table**

create table BORROWER (Card\_no char(10) not null,name varchar(20) not null, Address varchar(20),Phone int, primary key(Card\_no));

2. Write the appropriate SQL statements to populate the BOOK and PUBLISHER relations with 3 records in both relations. (12 points)

Answer:

insert into PUBLISHER(Name,Address,Phone)

values('McGraw Hill','NJ USA',2019894563),

('Creative Comons','NY USA',2156544563),

('JET','NJ USA',2105654563);

insert into BOOK(Publisher\_name,Book\_id,title)

values((select Name from PUBLISHER where Name=' McGraw Hill'),'ID1','dbms')

insert into BOOK(Publisher\_name,Book\_id,title)

values((select Name from PUBLISHER where Name='JET'),'ID2','Core Java')

insert into BOOK(Publisher\_name,Book\_id,title)

values((select Name from PUBLISHER where Name='Creative Comons'),'ID3','JavaScript')

3. Write the appropriate SQL statement(s) to remove the records from the book table but leave the table structure intact. (5 points)

Answer:

delete from BOOK;

4. Write SELECT statements to do the following: (4 points each)

a. List all of the Publishers names. There should not be any duplicates.

b. The names of the borrowers who currently have books from the library.

c. List all of the books published by ‘Bookshelf’ that are on loan to card 43576

Answer:

a. select Name

from PUBLISHER;

b. select Name

from BORROWER

where BORROWER.Card\_no = BOOK\_LOANS.Card\_no;

c. select Title

from BOOK

where Book.Publisher\_name = 'Bookshelf' and

BOOK.Book\_id = BOOK\_LOANS.Book\_id and BOOK\_LOANS.Card\_no = ‘43576’