**Instructions:**

**In a word document, answer the following questions.**

**Keep question in the exact order they are listed in.**

**Questions should be in bold font.**

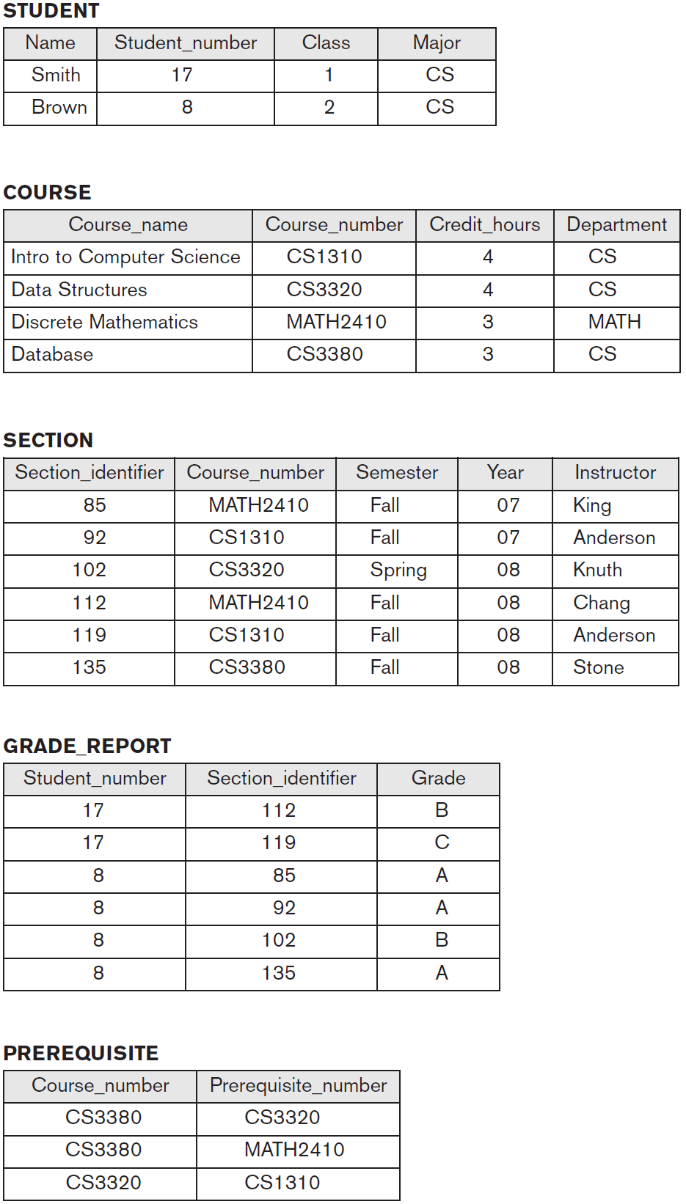
**Answers should be in non-bold font.**

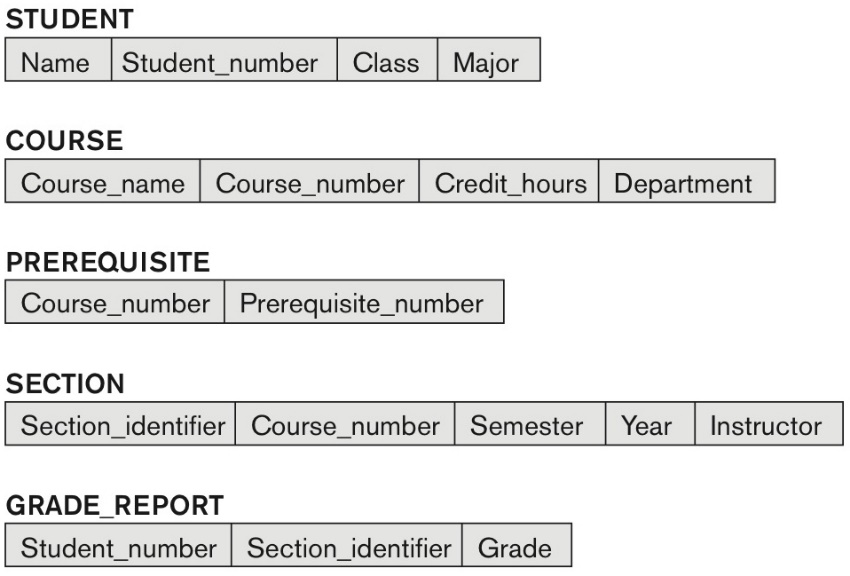
**All questions are worth the same points**

**Question 1 (CHAPTER 6) Consider the database and schema shown next.**

**What are the referential integrity constraints that should hold on the schema?**

**Write appropriate SQL DDL statements to define the database.**

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CREATE TABLE STUDENT (

Name VARCHAR(30) NOT NULL,

Student\_number INTEGER NOT NULL,

Class INTEGER NOT NULL,

Major CHAR(2),

PRIMARY KEY(Student\_number)

);

CREATE TABLE COURSE (

Course\_number CHAR(8) NOT NULL,

Credit\_hours INTEGER NOT NULL,

Department CHAR(4),

PRIMARY KEY (CourseNumber),

UNIQUE (CourseName);

);

CREATE TABLE PREREQUISITE (

Course\_number CHAR(8) NOT NULL,

Prerequisite\_number CHAR(8),

FOREIGN KEY(Course\_number) REFERENCES COURSE(Course\_number),

FOREIGN KEY(Prerequisite\_number) REFERENCES COURSE(Course\_number)

);

CREATE TABLE SECTION (

Section\_identifier INTEGER NOT NULL,

Course\_number CHAR(8) NOT NULL,

Semester CHAR(6) NOT NULL,

Year CHAR(4),

Instructor CHAR(30),

PRIMARY KEY(Section\_identifier),

FOREIGN KEY (Course\_number) REFERENCES COURSE (Course\_number)

);

CREATE TABLE GRADE\_REPORT (

Student\_number INTEGER NOT NULL,

Section\_identifier INTEGER NOT NULL,

Grade CHAR,

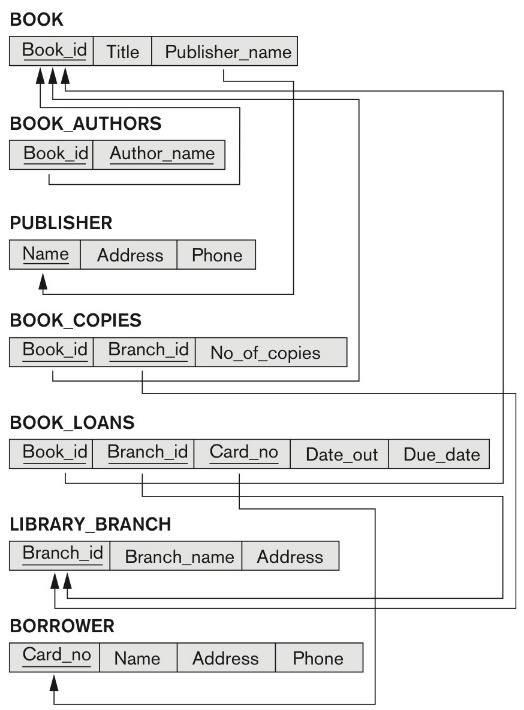
PRIMARY KEY(Student\_number)

FOREIGN KEY (Student\_number) REFERENCES STUDENT (Student\_number),

FOREIGN KEY (Section\_identifier) REFERENCES SECTION (SectionIdentifier)

);

**Question 2 (CHAPTER 6) Write appropriate SQL DDL statements for declaring the LIBRARY relational database schema of following figure Specify the keys and referential triggered actions.**

****

CREATE TABLE BOOK (

Book\_id VARCHAR(30) NOT NULL,

Title VARCHAR(100) NOT NULL,

Publisher\_name VARCHAR(30),

PRIMARY KEY(Book\_id)

FOREIGN KEY (Publisher\_name) REFERENCES PUBLISHER(Name)

);

CREATE TABLE BOOK\_AUTHORS (

Book\_id VARCHAR(30) NOT NULL,

Author\_name VARCHAR(30) NOT NULL,

PRIMARY KEY (Book\_id, Author\_name),

FOREIGN KEY (Book\_id) REFERENCES BOOK (Book\_id)

);

CREATE TABLE PUBLISHER (

Name VARCHAR(30) NOT NULL,

Address VARCHAR(50) NOT NULL,

Phone VARCHAR(10),

PRIMARY KEY (Name)

);

CREATE TABLE BOOK\_COPIES(

Book\_id VARCHAR(30) NOT NULL,

Branch\_id VARCHAR(30) NOT NULL,

No\_of\_copies INTEGER,

PRIMARY KEY (Book\_id, Branch\_id),

FOREIGN KEY (Book\_id) REFERENCES BOOK (Book\_id)

FOREIGN KEY (Branch\_id) REFERENCES LIBRARY\_BRANCH (Branch\_id),

);

CREATE TABLE BOOK\_LOANS(

Book\_id VARCHAR(30) NOT NULL,

Branch\_id VARCHAR(30) NOT NULL,

Card\_no INTEGER NOT NULL,

Date\_out DATETIME,

Due\_date DATETIME,

PRIMARY KEY (Book\_id, Branch\_id, Card\_no),

FOREIGN KEY (Book\_id) REFERENCES BOOK (Book\_id)

FOREIGN KEY (Branch\_id) REFERENCES LIBRARY\_BRANCH (Branch\_id),

FOREIGN KEY (Card\_no) REFERENCES BORROWER (Card\_no)

);

CREATE TABLE LIBRARY\_BRANCH(

Branch\_id VARCHAR(30) NOT NULL,

Branch\_name VARCHAR (30) NOT NULL,

Address VARCHAR(50) NOT NULL,

PRIMARY KEY (Branch\_id)

);

CREATE TABLE BORROWER(

Card\_no INTEGER NOT NULL,

Name CHAR(30) NOT NULL,

Address VARCHAR(50) NOT NULL,

Phone VARCHAR(10) NOT NULL,

PRIMARY KEY(Card\_no)

);