Question 1 (25 points)

Write the SQL data definition statements to create the above database. Make sure that you write the statements in the order that they should be executed.

CREATE TABLE RACETRACKS
(RaceTrack CHAR(20) NOT NULL,
City CHAR(20),
State CHAR(20),
SeatingCapacity INTEGER,
CONSTRAINT pk1 PRIMARY KEY (RaceTrack))

CREATE TABLE HORSES
(HorseName CHAR(20) NOT NULL,
FatherName CHAR(20),
MotherName CHAR(20),
DOB DATE,
CONSTRAINT pk2 PRIMARY KEY (HorseName))

CREATE TABLE HORSERACE
(RaceID INTEGER,
DateOfRace DATE,
RaceNumber INTEGER,
RaceTrack CHAR(20),
WinningHorse CHAR(20),
WinningTime CHAR(20),
CONSTRAINT pk3 PRIMARY KEY (RaceID),
CONSTRAINT fk1 FOREIGN KEY (WinningHorse) REFERENCES HORSES(HorseName),
CONSTRAINT fk2 FOREIGN KEY (RaceTrack) REFERENCES RACETRACKS(RaceTrack))
Question 2 (25 points)

a. Write an SQL statement to add a record to the HORSES table about a horse named SuperHorse, with a birthday of 7/30/01 whose parents were Secretariat (the father) and Ruffian (the mother).

```
INSERT INTO HORSES ( HorseName, FatherName, MotherName, DOB )
VALUES ( "SuperHorse", "Secretariat", "Ruffian", #7/30/01#)
```

b. Write an SQL statement that will create an index for the RACETRACKS table based on City.

```
CREATE INDEX index1 ON RACETRACKS (City)
```

c. Explain briefly why we shouldn't create 6 indexes for the HORSERACE table.

Too much time on update!

d. Write an SQL statement to delete all horses whose father was Imposter from the HORSES table.

```
DELETE *
FROM HORSES
WHERE FatherName = "Imposter";
```

e. Write an SQL statement that will double the seating capacity for all racetracks in New York state.

```
UPDATE RACETRACKS
SET SeatingCapacity = SeatingCapacity * 2
WHERE State = "New York";
```
Question 3 (40 points)

Write SQL statements to determine each of the following. Some questions also have special directions for creating the query.

a. The names of all horses who won a race at Saratoga racetrack.

```sql
SELECT WinningHorse
FROM HORSERACE
WHERE RaceTrack = "Saratoga";
```

b. The names of all horses fathered by either Secretariat or Seattle Slew.

```sql
SELECT HorseName
FROM HORSES
WHERE FatherName = "Secretariat" OR FatherName = "Seattle Slew";
```

c. The names of all horses fathered by Secretariat who won a race at Saratoga racetrack.

```sql
SELECT HorseName
FROM HORSES INNER JOIN HORSERACE ON HORSES.HorseName = HORSERACE.WinningHorse
WHERE FatherName = "Secretariat" AND RaceTrack = "Saratoga";
```

d. The average seating capacity of New York state racetracks.

```sql
SELECT Avg(SeatingCapacity) AS [Average Capacity]
FROM RACETRACKS
WHERE RACETRACKS.State="New York";
```
e. The average seating capacity of racetracks for all states.

SELECT Avg(SeatingCapacity) AS [Average Capacity], State
FROM RACETRACKS
GROUP BY State;

f. The names of all horses who never won a race.

SELECT HorseName
FROM HORSES
WHERE HorseName NOT IN
(SELECT WinningHorse
FROM HORSERACE);

g. The names of all horses who were born in 1998.

SELECT HorseName
FROM HORSES
WHERE DOB BETWEEN #1/1/98# AND #12/31/98#;

h. The names of all horses fathered by Seattle Slew who won a race in California.

SELECT HorseName
FROM (HORSES INNER JOIN HORSERACE ON HORSES.HorseName =
HORSERACE.WinningHorse)
INNER JOIN RACETRACKS ON HORSERACE.RaceTrack = RACETRACKS.RaceTrack
WHERE RACETRACKS.State="California" AND HORSES.FatherName = "Seattle Slew";
Question 4 (10 points)

Given the following Access queries, write the equivalent SQL statements.

a.

```
SELECT HorseName
FROM HORSES
WHERE FatherName="Secretariat" OR MotherName="Ruffian"
```

b.

```sql
SELECT FatherName, MotherName
FROM HORSES INNER JOIN HORSERACE ON HORSES.HorseName = HORSERACE.WinningHorse
WHERE DateOfRace='7/29/01' AND RaceNumber=1 AND HORSERACE.RaceTrack='Saratoga'
```