a)

SELECT DISTINCT s.ID, s.name

FROM student AS s

JOIN takes AS t ON s.ID = t.ID

WHERE t.semester = 'Spring' AND t.year = 2009;

b)

SELECT DISTINCT t.ID

FROM takes AS t

JOIN teaches AS te

ON t.course\_id = te.course\_id

AND t.sec\_id = te.sec\_id

AND t.semester = te.semester

AND t.year = te.year

JOIN instructor AS i

ON te.ID = i.ID

WHERE i.name = 'Einstein';

c)

SELECT DISTINCT s.name

FROM student AS s

JOIN takes AS t ON s.ID = t.ID

JOIN course AS c ON c.course\_id = t.course\_id

WHERE c.dept\_name = 'Comp. Sci.';

d)

SELECT course\_id, title

FROM course

WHERE dept\_name = 'Biology'

ORDER BY course\_id;

e)

-- PERSON

CREATE TABLE person (

driver\_id VARCHAR(20) PRIMARY KEY,

name VARCHAR(100) NOT NULL,

address VARCHAR(200)

);

-- CAR

CREATE TABLE car (

vin VARCHAR(17) PRIMARY KEY,

model VARCHAR(100) NOT NULL,

year SMALLINT CHECK (year >= 1886) -- first car year sanity check

);

-- ACCIDENT

CREATE TABLE accident (

report\_id VARCHAR(20) PRIMARY KEY,

date DATE NOT NULL,

location VARCHAR(200)

);

-- OWNS

CREATE TABLE owns (

driver\_id VARCHAR(20) NOT NULL,

vin VARCHAR(17) NOT NULL,

PRIMARY KEY (driver\_id, vin),

FOREIGN KEY (driver\_id) REFERENCES person(driver\_id)

ON UPDATE CASCADE ON DELETE CASCADE,

FOREIGN KEY (vin) REFERENCES car(vin)

ON UPDATE CASCADE ON DELETE CASCADE

);

-- PARTICIPATED

CREATE TABLE participated (

report\_id VARCHAR(20) NOT NULL,

vin VARCHAR(17) NOT NULL,

driver\_id VARCHAR(20) NOT NULL,

damage\_amt DECIMAL(12,2) NOT NULL DEFAULT 0,

PRIMARY KEY (report\_id, vin, driver\_id),

FOREIGN KEY (report\_id) REFERENCES accident(report\_id)

ON UPDATE CASCADE ON DELETE CASCADE,

FOREIGN KEY (vin) REFERENCES car(vin)

ON UPDATE CASCADE ON DELETE CASCADE,

FOREIGN KEY (driver\_id) REFERENCES person(driver\_id)

ON UPDATE CASCADE ON DELETE CASCADE

);