SAMPLE SOLUTION TO MIDTERM 1

2.  
   a) Actors cast in some movie by Akira Kurosawa

   SELECT a.actName
   FROM Actor a JOIN Movie m ON a.movieID=m.movieID
   WHERE m.movieDirector = "Akira Kurosawa";

   b) Actors cast only in movies by Kurosawa

   SELECT a.actName
   FROM Actor a JOIN Movie m ON a.movieID=m.movieID
   WHERE m.movieDirector = "Akira Kurosawa" AND
     a.actName NOT IN
     (SELECT a.actName
      FROM Actor a JOIN Movie m ON a.movieID=m.movieID
      WHERE m.movieDirector != "Akira Kurosawa" );

   c) Theater names and playing times for all movies directed by Kurosawa

   SELECT m.movieTitle, t.theaterName, p.playingTime
   FROM Movie m JOIN Playing p USING (movieID)
   JOIN Theater t USING(theaterName)
   WHERE m.movieDirector = "Akira Kurosawa";

   d) Actor which has acted in the most movies

   SELECT actorName, COUNT(movieID) AS numMovies
   FROM Actor
   GROUP BY actorName
   HAVING numMovies >= ALL
     (SELECT COUNT(movieID)
      FROM Actor
      GROUP BY actorName);

   e) Theaters playing all movies

3.  AUCTION schema

   customer: cust_id, cust_name_first, cust_name_last, cust_phone
   
   buyer: buyer_id, buyer_credit_card
      buyer_id foreign key to customer(cust_id)
   
   seller: seller_id, seller_bank_acct
      seller_id foreign key to customer(cust_id)
   
   item: item_id, item_descr, item_base_price, seller_id
      seller_id foreign key to seller not null
   
   bid: item_id, bid_number, bid_time, bid_amount, buyer_id
      item_id foreign key to item
      buyer_id foreign key to buyer not null
   
   winning_bid: item_id, bid_number, winning_bid_sales_fee
      (item_id, bid_number) foreign key to bid
notes:
- Obviously anything part of the primary key should be not null, so was not specified above.
- For winning bid it might make sense to have the primary key just be item_id. I do not know if it is possible to have the foreign key be a superset of the primary key.