Name: _____ USC ID: _____

INF 551 – Fall 2017 (Afternoon section)

Quiz 6: XML & ER (10 points), 15 minutes

1. [6 points] Consider an XML document containing a catalog of CD's as shown on the right. Write an XPath expression for each of the following questions.

```
▼<CATALOG>
  ▼<CD rating="3">
     <TITLE>Empire Burlesque</TITLE>
     <ARTIST>Bob Dylan</ARTIST>
     <COUNTRY>USA</COUNTRY>
     <COMPANY>Columbia</COMPANY>
     <PRICE>10.90</PRICE>
     <YEAR>1985</YEAR>
   </CD>
  ▼<CD rating="2">
     <TITLE>Hide your heart</TITLE>
     <ARTIST>Bonnie Tyler</ARTIST>
     <COUNTRY>UK</COUNTRY>
     <COMPANY>CBS Records</COMPANY>
     <PRICE>9.90</PRICE>
     <YEAR>1988</YEAR>
   </CD>
```

   a. Final all CDs (elements) by "Bob Dylan".
   /CATALOG/CD[ARTIST="Bob Dylan"]

   b. Find the titles of all CDs produced by "Columbia" and with price < 10, return values only.
   /CATALOG/CD[COMPANY="Columbia"][PRICE<10]/TITLE/text()

   c. Find the artists of CDs produced after 1985 and rated 3 or above, return values only.
   /CATALOG/CD[YEAR>1985][@rating>=3]/ARTIST/text()

2. [4 points] Draw an ER diagram to model the product-sale application with the following requirements.
   - For each product, record its id, name, and manufacturer.
   - For each person, record its SSN, name, and address.
   - For each store, record its id, name, and city.
   - If a product is a software product, record its operating system as well.
   - For each purchase, record its date.
   - Underline the key attributes.
   - Indicate the multiplicity and type of relationship.
   - *All relationships in the ER diagram should be* **binary**.