Quiz 6, Fall 2018
CSCI 4380 Database Systems
Time: 20 minutes

Name 1: _____
Name 2: _____
Name 3: _____

Rules.

- Open book and notes. Do not use any electronic tools including your computer.
- You can talk to anyone in class. If you know the answer, help someone else in class.
- Each quiz must be by at least two and at most three people. Most quizzes should be by three people, so find someone to talk to. Put your name on one quiz only.

```
Candidates(personid, eid, year, partyname, ballotposition, numvotes)
Elections(id, name, etype, state, howoften)
```

Question (Points: a:8, b:8, c:9). You are given the following statistics:

```
TUPLES(Candidates) = 8000, PAGES(Candidates) = 500
TUPLES(Elections) = 1200, PAGES(Elections) = 120
TUPLES(Candidates.partyname = 'Morty Party' and Candidates.year = 2018) = 40
```

Index name	Indexed Attributes	Structure	# pages at leaf level
CanIdx1	Candidates(eid, year, personid)	3 levels (root, internal, leaf)	80 pages

The following are the queries over this table.

```
Q1: select * from candidates c, elections e
    where c.partyname = 'Morty Party' and c.year = 2018 and c.eid=e.id;
```

Answer the following with explanations of your computation.

(a) What is the cost of sorting `Candidates` given **M=10** blocks. Show your work.

Answer here.

(b) What is the cost of the following query `Candidates` $\bowtie$ `Elections` using block-nested loop join with **M=11** blocks. Show your work.

Answer here.

(c) What is the cost of the following query plan for `Q1`:

Search candidates on condition `c.partyname = 'Morty Party' and c.year = 2018` using `CanIdx1` with sufficient memory.

Pipeline the results to a block-nested loop join with elections with `M=11` blocks. (Hint: The number of tuples satisfying partyname and year condition is given. How many pages does this take to keep in memory?)

Answer here.