Quiz 5, 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.

Question (Points: a:3 b-d:7). You are given the following table that stores candidate information in no particular order (`TUPLES(Candidates) = 8000, PAGES(Candidates) = 500`):

`Candidates(personid, eid, year, partyname, ballotposition, numvotes)`

Index name	Indexed Attributes	Structure	# pages at leaf level
`CanIdx1`	`Candidates(eid, year, personid)`	3 levels (root, internal, leaf)	`80` pages
`CanIdx2`	`Candidates(partyname, year)`	3 levels (root, internal, leaf)	`50` pages

You can use this information to find approximately how many tuples are stored per leaf node in each index and per data page in the table. In addition, you are given the number of tuples for each of the following conditions:

Condition	Number of tuples
`eid = 10`	200
`year = 2018`	160
`partyname = 'Morty Party'`	2000
`personid = 101`	8
`eid = 10 and year = 2018`	4
`partyname = 'Morty Party' and year = 2018`	40
`eid = 10 and personid = 101`	8

The following are the queries over this table.

```
Q1: select partyname, numvotes from candidates where eid = 10 and year = 2018 ;
Q2: select * from candidates where partyname = 'Morty Party' and year = 2018 ;
Q3: select year from candidates where eid = 10 and personid = 101 ;
```

Answer the following with explanations of your computation.

(a) What is the cost of Q1 using sequential scan? Explain with one sentence.

Answer here.

(b) How can you answer Q1 using index `CanIdx1`? What is the potential cost? Explain.
Answer here.

(c) How can you answer Q2 using index `CanIdx2`? What is the potential cost? Explain.
Answer here.

(d) How can you answer Q3 using index `CanIdx1`? What is the potential cost? Explain.
Answer here.