

Name: \_\_\_\_\_

## QUIZ 3 - ICS 321 Fall 2017

1. Consider the controls: Security, Concurrency, Integrity and Recovery.
  - a) What type of control would not allow you to delete a supplier that has a shipment in transit?
  - b) Power goes out but no data is lost. What type of control prevented this?
  - c) Many users can be requesting, adding, updating and deleting the same data fields without interference from each other. What type of control accommodates this?
  - d) Many users can be requesting, adding, updating and deleting data fields but only what they have explicit authorization to. What type of control enforces this?
2. *Uniqueness and Irreducibility*. A key for a relvar is a subset of the heading where:
  - 1) no two tuples can have the same key value (uniqueness) *and*
  - 2) no proper subset of the key has the uniqueness property (irreducibility).

Imagine a nationwide database of residential property addresses. You can also assume:

- a) "TMK" numbers are defined for every property and are unique only to a state
- b) Street addresses (including Unit) are unique only to a City
- c) Cities are unique only to a State
- d) Two or more cities in the country will never share the same ZipCode

TMK	StreetAddress	Unit	City	State	ZipCode
1390920910000	1180 Mokuhano St		Honolulu	HI	96825
1390820620024	1163 Mokuhano St	B205	Honolulu	HI	96825
1470590090000	47-632 Uakea Pl		Kaneohe	HI	96744
1390820620018	1163 Mokuhano St	B102	Honolulu	HI	96825
1370090040000	5596 Kalaniana'ole Hwy		Honolulu	HI	96821

- a. What are the valid key sets for the relvar? Make sure you write them as sets.
  
  
  
  
  
  
  
  
  
  
- b. What valid key sets would have the key enforce TMK number uniqueness to a state?