

The University of British Columbia
Computer Science 304

Midterm Examination
October 3, 2013

Time: 75 minutes

Total marks: 44

Instructor: Rachel Pottinger

Name _____ Student No _____
(PRINT) (Last) (First)

Signature _____

This examination has 3 double-sided pages.

Check that you have a complete paper.

This is a closed book, closed notes exam. No books or other material may be used.

Answer all the questions on this paper.

Give very **short but precise** answers.

State any assumptions you make

Work fast and do the easy questions first. Leave some time to review your exam at the end.

Good Luck

Question	Mark	Out of
1		10
2		15
3		9
4		10
Total		44

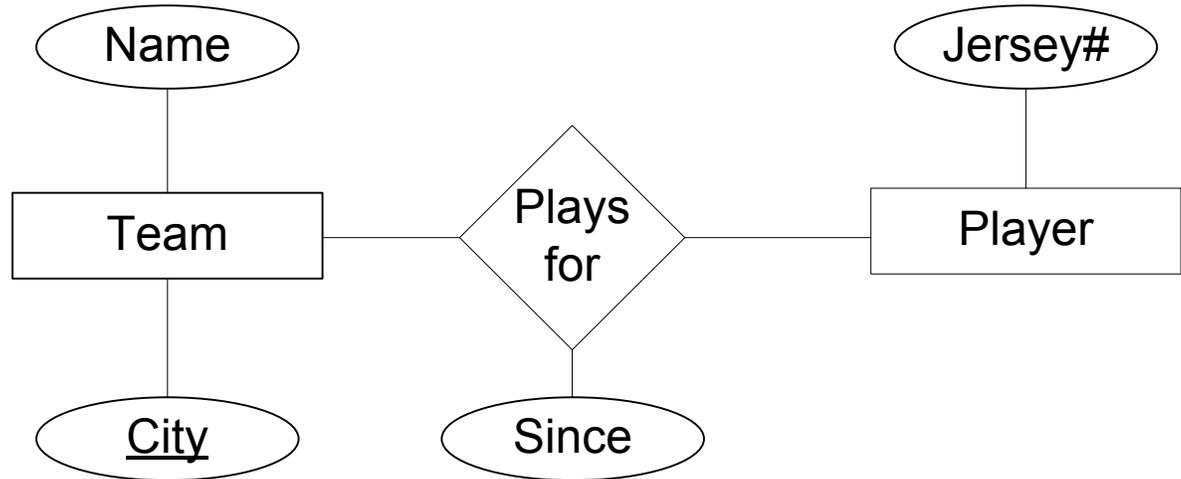
1. { 10 marks}

<i>a.</i>	In ER diagrams, a relationship set can exist between an entity set and itself.	<i>TRUE</i> <i>FALSE</i>
<i>b.</i>	In relational algebra, two tuples for the relation $R(a, \underline{b})$ can have the same value for a .	<i>TRUE</i> <i>FALSE</i>
<i>c.</i>	We use ER diagrams to logically model our data.	<i>TRUE</i> <i>FALSE</i>
<i>d.</i>	It is possible for a table in a relational schema to have more than one key.	<i>TRUE</i> <i>FALSE</i>
<i>e.</i>	We can check a database instance to verify that an integrity constraint holds.	<i>TRUE</i> <i>FALSE</i>

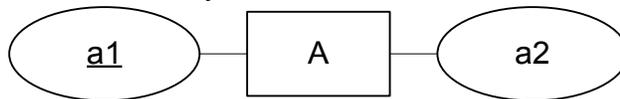
3. {9 marks}

For each part below, annotate the related diagram so that it provides the additional requested functionality– **do not add any additional items or constraints beyond what is required**. If nothing needs to be done to the diagram or it is impossible to add that constraint in our version of ER diagram, state why. State any assumptions.

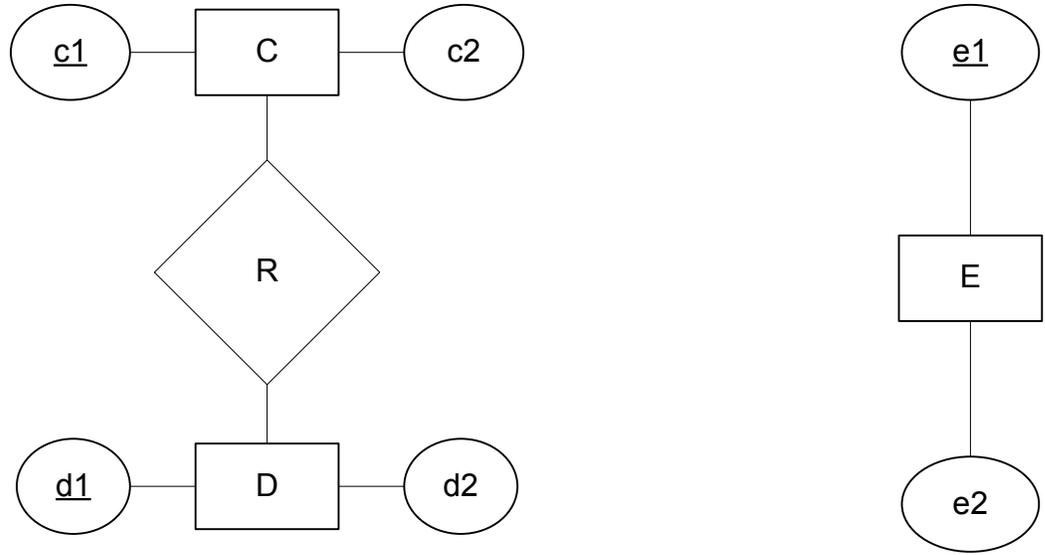
- a. The entity player depends on Team for its existence. The key of Player is the team's city and the Player's Jersey #



- b. a2 is another key of A



c. E is in a many to many relationship with R



4. {10 marks}

Suppose that we have a ternary relationship T between entity sets D, E, and F such that D has a key constraint and E has a key constraint and total participation; these are the only constraints. D has attributes d1 and d2, with d1 being the key; E has attributes e1 and e2, with e1 being the key; and F has attributes f1 and f2, with f1 being the key. T has no descriptive attributes. All attributes are integers. Write SQL statements that create tables corresponding to this information so as to capture as many of the constraints as possible. If you cannot capture some constraint, explain why.