**Final-Review**

**Homework:** Final Review on Chapters 2 through 5 (20 points plus 2 points Extra-Credit built-in) - Due \_\_\_ \_\_\_ \_\_ Before Class

Camp Carlyle offers sessions in five activities: hiking, mountain biking, horseback riding, swimming, and canoeing. The camp director has asked you to create a database to track information about campers, their parents, and the activities in which campers are participating. You need to record the leader of each activity and the location of the activity. You also need to track standard camper information (name, address, etc.) and the individual parents of the campers. Each camper must participate in only one activity. Every camper has one or more parents. Each parent may have more than one camper. You should include the parent’s place of employment and work phone.

**Problem 1:** Create a data model for Camp Carlyle by drawing an Entity-Relationship (E-R) Diagram. Show the entities, identifiers, attributes, relationships, and maximum and minimum cardinalities.

**Problem 2:** Create a database design for the Camp Carlyle database, using the written format TABLE\_NAME (FirstColumn, SecondColumn, etc.) Show the relations, primary keys, foreign keys, and referential integrity constraints.

**Problem 3:** Normalize the following relation, which is separate from the other problems:

COMPUTER\_CLUB (ClubName, City, State, President, SponsoringCompany, Address, Sponsor, Email)

* Each computer club is located in a particular city and state, and has one president.
* Each company can sponsor many computer clubs.

Show the candidate keys and functional dependencies in the original relation. Show the new/updated relations with their primary keys, foreign keys, and referential integrity constraints:

**Problem 4A:** Create your own Camp Carlyle database in Microsoft Access. Set the column properties and designate the primary keys. Create the relationships with the foreign keys and set the referential integrity constraints.

**Problem 4B:** Enter the following data into the Camp Carlyle database in Microsoft Access:

* Mary is an only child and has only one parent. She is doing horseback riding at the corral.
* Half-Pint is also an only child but has two parents. She is doing canoeing at the lake.
* Carrie and Grace are siblings and have the same two parents. Carrie is doing horseback riding and Grace is doing canoeing.

**Problem 5A:** Create and run a SQL query to display the campers with their activities and locations.

**Problem 5B:** Create and run a SQL query to display the campers with their parents and work phones.

**Problem 6A:** Create and run a QBE query to display the campers with their activities and locations.

**Problem 6B:** Create and run a QBE query to display the campers with their parents and work phones.

(continued on next page)

**Problem 7:** Create a form with a sub-form to enter activities and campers. Each page of the form should show one activity with all the campers in that activity.

**Problem 8:** Create a stepped report to display the campers in each activity. Each activity should be listed once, with all the campers listed under their activity. Export the report to a PDF file.

Make sure your queries run with no error messages or input prompts, and the results look reasonable.

* Submit your diagram from Problem 1 in a Word, graphics, or image file.
* Submit your written answers from Problems 2 and 3 in Word or WordPad.
* Exit from Access and then submit your .accdb file from the remaining Problems.
* Submit your report PDF file.

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| **Rubric** | | |
| Problem 1 | Data Model ERD | 3 points |
| Problem 2 | Database Design | 3 points |
| Problem 3 | Normalization | 4 points |
| Problem 4A | Access Database | 5 points |
| Problem 4B | Camper-Parent Data | 1 point |
| Problems 5, 6 | SQL and QBE Queries | 4 points |
| Problem 7 | Form | 1 point |
| Problem 8 | Report and PDF | 1 point |
| Total |  | 22 points |