HIT234 – Database Concepts

Sample Test

Instructions:

- Part-A: Attempt all 8 questions.
- Part-B: Attempt both questions.
- Refer to the schema provided in the Appendix for Part-A
- ERDs can be drawn in either Chen's or Crow's Foot notation.

PART-A

1. Write SQL queries to answer the following questions using Appendix-1:
   a. List the numbers of all sections of course ISM 3113 that are offered during the semester "I-2015."
   b. List the course IDs and names of all courses that start with the letters "Data."
   c. List the IDs of all faculty members who are qualified to teach both ISM 3112 and ISM 3113.
   d. Modify the query above in part c so that both qualifications must have been earned after the year 2005.
   e. List the ID of the faculty member who has been assigned.
2. Write SQL queries to answer the following questions using Appendix-2:
   a. Write the SQL command to find any tutors who have not submitted a report for July.
   b. Write an SQL query to list the Read scores of students who were ever taught by tutors whose status is Dropped.
   c. Write an SQL query to determine the total number of hours and the total number of lessons Tutor 106 taught in June and July 2015.

PART-B

3.

MILLENNIUM COLLEGE
GRADE REPORT
FALL SEMESTER 2015

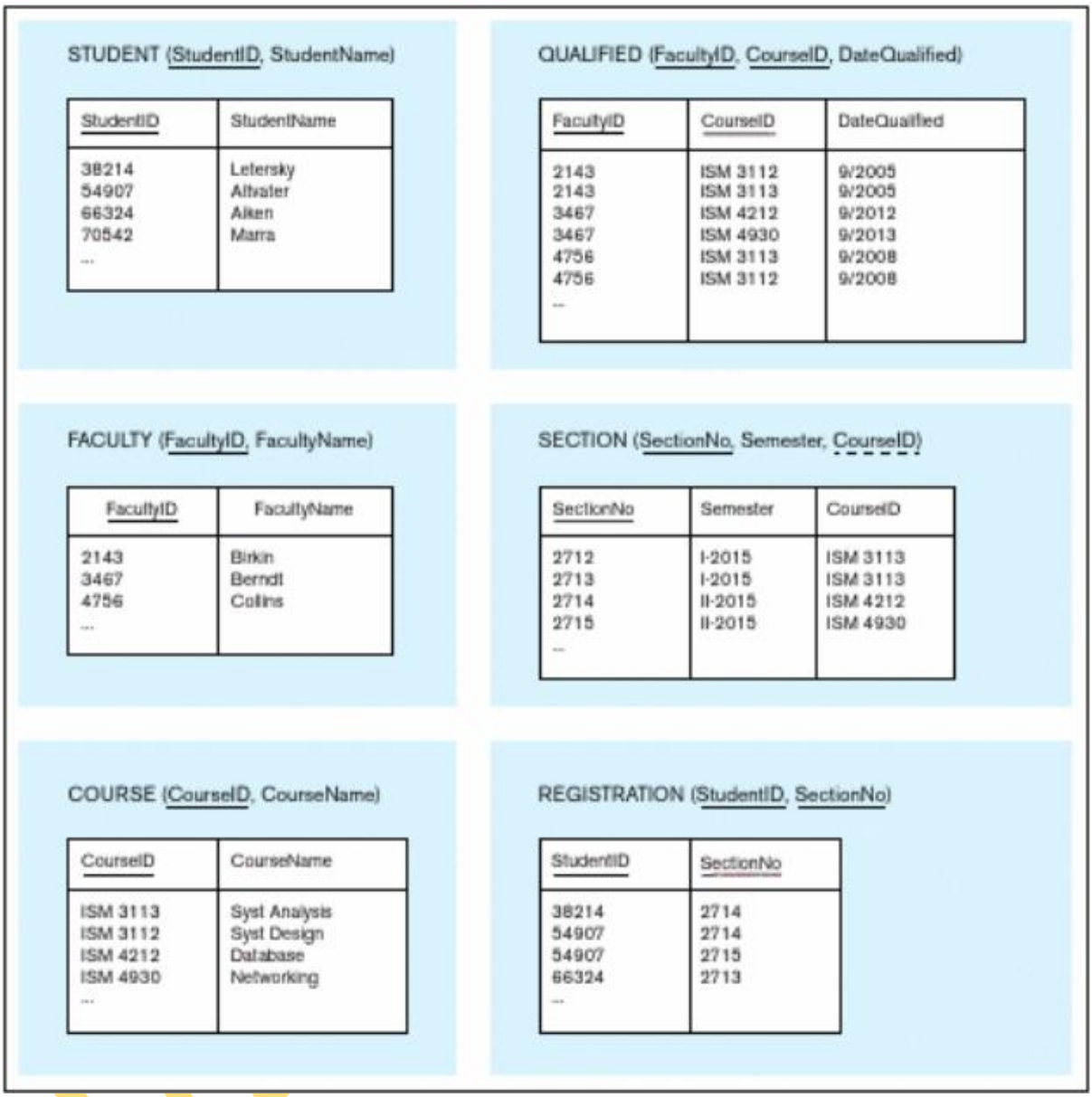
NAME:	Emily Williams	ID: 268300458
CAMPUS ADDRESS:	208 Brooks Hall	
MAJOR:	Information Systems	

COURSE ID	TITLE	INSTRUCTOR NAME	INSTRUCTOR LOCATION	GRADE
IS 350	Database Mgt.	Codd	B104	A
IS 465	System Analysis	Parsons	B317	B

The above figure shows a grade report that is mailed to students at the end of each semester. Prepare an ERD reflecting the data contained in the grade report. Assume that each course is taught by one instructor. Also, draw this data model using the tool you have been told to use in the course. Explain what you chose for the identifier of each entity type on your ERD.

4. An art museum owns a large volume of works of art. Each work of art is described by an item code (identifier), title, type, and size; size is further composed of height, width, and weight. A work of art is developed by an artist, but the artist for some works is unknown. An artist is described by an artist ID (identifier), name, date of birth, and date of death (which is null for still living artists). Only data about artists for works - currently owned by the museum are kept in the database. At any point in time, a work of art is either on display at the museum, held in storage, away from the museum as part of a traveling show, or on loan to another - gallery. If on display at the museum, a work of art is also described by its location within the museum. A traveling - show is described by a show ID -identifier), (the city in which the show is currently appearing, and the start and end dates of the show. Many of the museum works may be part of a given show, and only active shows with at least one museum work of art need be represented in the database. Finally, another gallery is described by a gallery ID (identifier), name, and city. The museum wants to retain a complete history - of loaning a work of art to other galleries, and each time a work is loaned, the museum wants to know the date the work was loaned and the date it was returned.
    a. Extract business rules from this case and assumptions (where necessary).
    b. Draw ERD using Chen or Crow's Foot notation. As you develop the ERD for this problem, follow good data naming guidelines.

APPENDIX-1



STUDENT (StudentID, StudentName)

StudentID	StudentName
38214	Letersky
54907	Altvater
66324	Aiken
70542	Marra
...	

QUALIFIED (FacultyID, CourseID, DateQualified)

FacultyID	CourseID	DateQualified
2143	ISM 3112	9/2005
2143	ISM 3113	9/2005
3467	ISM 4212	9/2012
3467	ISM 4930	9/2013
4756	ISM 3113	9/2008
4756	ISM 3112	9/2008
...		

FACULTY (FacultyID, FacultyName)

FacultyID	FacultyName
2143	Birkin
3467	Berndt
4756	Collins
...	

SECTION (SectionNo, Semester, CourseID)

SectionNo	Semester	CourseID
2712	I-2015	ISM 3113
2713	I-2015	ISM 3113
2714	II-2015	ISM 4212
2715	II-2015	ISM 4930
...		

COURSE (CourseID, CourseName)

CourseID	CourseName
ISM 3113	Syst Analysis
ISM 3112	Syst Design
ISM 4212	Database
ISM 4930	Networking
...	

REGISTRATION (StudentID, SectionNo)

StudentID	SectionNo
38214	2714
54907	2714
54907	2715
66324	2713
...	

APPENDIX-2

TUTOR (TutorID, CertDate, Status)

TutorID	CertDate	Status
100	1/05/2015	Active
101	1/05/2015	Temp Stop
102	1/05/2015	Dropped
103	5/22/2015	Active
104	5/22/2015	Active
105	5/22/2015	Temp Stop
106	5/22/2015	Active

STUDENT (StudentID, Read)

StudentID	Read
3000	2.3
3001	5.6
3002	1.3
3003	3.3
3004	2.7
3005	4.8
3006	7.8
3007	1.5

MATCH HISTORY (MatchID, TutorID, StudentID, StartDate, EndDate)

MatchID	TutorID	StudentID	StartDate	EndDate
1	100	3000	1/10/2015	
2	101	3001	1/15/2015	5/15/2015
3	102	3002	2/10/2015	3/01/2015
4	106	3003	5/28/2015	
5	103	3004	6/01/2015	6/15/2015
6	104	3005	6/01/2015	6/28/2015
7	104	3006	6/01/2015	

TUTOR REPORT (MatchID, Month, Hours, Lessons)

MatchID	Month	Hours	Lessons
1	6/15	8	4
4	6/15	8	6
5	6/15	4	4
4	7/15	10	5
1	7/15	4	2