**Mid-Term Exam**

Classroom Online

Assignment Points: 20 points

**Name: John Wilson**

**Exam rules:**

* You must submit this mid-term by **7/6/2022, 11:59 pm**. No late submission.
* Submission: submit in Canvas in pdf or word doc.
* This is open book exam and any kind of resource materials are allowed.
* Collaborations and consultations are NOT allowed. Do your own work.

**Section 1: Multiple choice questions (use X mark or highlight your answer)**

**Total Points: 5 (All questions are equally weighted)**

1. What is the syntax to load data into the table? (Consider D as a table and a, b, c as data)
2. enter into D (a, b, c);
3. insert into D values (a, b, c);
4. insert into D (a, b, c);
5. insert (a, b, c) values into D;
6. When the table is joined with itself, the type of join is called ………….?
   1. Union
   2. Right Outer Join
   3. Left Outer Join
   4. Self-Join
7. The *address* field of a person table should not be part of the primary key since it is likely
8. Dependent
9. Changed
10. Text
11. Too long
12. The term *attribute* refers to a \_\_\_\_\_\_\_\_\_\_\_ of a table.
13. Record
14. Column
15. Tuple
16. Key
17. The term \_\_\_\_\_\_\_ is used to refer to a row.
18. Attribute
19. Tuple
20. Field
21. Instance
22. A relational database consists of a collection of
23. Tables
24. Fields
25. Records
26. Keys
27. CREATE TABLE employee is part of
28. DML
29. DDL
30. VIEW
31. Integrity constraint
32. The maximum value for data type Decimal (3, 2) is
33. 9.99
34. 99.99
35. 999.99
36. All of the above
37. Duplicate records will be eliminated, when a query uses
38. Select Only Clause
39. Where Distinct Clause
40. Select Distinct Clause
41. From Distinct Clause
42. Which of the following is similar to “*HAVING*” clause in SQL statement?
43. SELECT
44. WHERE
45. FROM
46. None of the mentioned
47. INSERT INTO *Instructor* VALUES (10211, ’Smith’, ’Biology’, 66000);

What type of statement is this?

1. Query
2. DML
3. Relational
4. DDL
5. What is the meaning of *“GROUP BY”* clause in SQL statement?
6. Group data by column values
7. Group data by row values
8. Group data by column and row values
9. None of the mentioned
10. Which among the following belongs to an *aggregate function*? Select all that apply.
11. COUNT
12. TOTAL
13. LOWER
14. All of the above
15. *Character* data type can be stored as
16. Fixed length string
17. Variable length string
18. Either Fixed or Variable length string
19. Integer
20. SELECT a.branch\_name, COUNT (d.customer\_name) AS count

FROM account a, depositor d

WHERE a.account\_number = d.account\_number

GROUP BY a.branch\_id;

1. The query is missing “Having” clause
2. The query is syntactically incorrect
3. The query is syntactically correct
4. The query contains incorrect join.
5. A domain is *atomic* if elements of the domain is considered \_\_\_\_\_\_\_\_\_\_\_ units.
6. Different
7. Indivisible
8. Constant
9. Divisible
10. Person table has PK personid with values of 1, 2, 3 and 4. “DELETE from Person WHERE personid = 2”.

How many rows will be deleted when you run above SQL?

1. 0
2. 1
3. 2
4. None of the above
5. Which of the following clause must be present with 'HAVING' clause in SQL?
6. Group by
7. Where
8. Order by
9. None of the above
10. What column names are displayed when this SQL command is executed?

SHOW COLUMNS FROM TableA LIKE '%name' ;

1. first\_name
2. store\_name
3. company\_name
4. all of the above
5. What is xyz in the following statement?

SELECT abc FROM xyz;

1. row name
2. column name
3. table name
4. database name

**Section 2: Fill in the blanks**

**Total Points: 6 (All questions are equally weighted)**

1. **Item** table has primary key I**temID** AUTO\_INCREMENT and 10 rows of data inserted.

Change AUTO\_INCREMENT to start from 100.

ALTER TABLE ………Item AUTO\_INCREMENT = 10………………………………………

1. Table *Employee* has columns (empid, name and managerid). Complete to find employees who are also managers.

SELECT e. name

FROM employee e

INNER JOIN

………manager m ON e.managerid = m.managerid…………………………

1. ***Customerid*** is key in both **Orders O** and **Customers C** tables. Complete below to select records that exists in both tables.

SELECT O.orderid, O.desc, C.name

FROM Orders O

……INNER JOIN Customers C ON O.customerid = C.customerid……………….

1. Update TableA to add 100 on *salary* for primary key *emp\_id* = 10

UPDATE TableA

………SET salary = salary + 100………………………..

.......WHERE emp\_id = 10 *……………………………….*

1. Complete below SQL statement to find count of records from Customers table.

SELECT Country, State, City, Count(\*) AS Count

FROM Customers

……..GROUP BY Country…………………..…………………..

1. Add FK on *child\_table* (column1) refrencingfrom *parent\_table* (column1).

ALTER TABLE *child\_table*

………ADD FOREIGN KEY (column1) ……………………..………….

………REFERENCES parent\_table(column1)……………………..

**Section 3: Write SQL statements**

**Total Points: 6 (All questions are equally weighted)**

Please answer all question based on below tables. Make sure to use table aliases:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Customer (C)** |  |  |  |  | **Order (O)** |  |  |  |
| *customer\_id (PK)* | first\_name | last\_name | job\_title |  | *order\_id (PK)* | *customer\_id (FK)* | order\_date | shipping\_company |
| C001 | John | Kelly | DBA |  | 1 | C001 | 9/27/2019 | FedEx |
| C002 | Amelia | Cruze | DBA |  | 2 | C002 | 9/30/2019 | UPS |
| C003 | Sohpia | Henry | Cashier |  | 3 | C002 | 8/15/2019 | UPS |
| C004 | Tom | Smith | QA |  | 4 | C005 | 8/20/2019 | FedEx |
| C005 | Mia | Stark | Cashier |  | 5 | C005 | 9/15/2019 | UPS |

1. Select full name (i.e. first\_name and last\_name) and job\_title whose customers records exists in customers table but NOT in orders table **using sub-query**.

SELECT CONCAT(C.first\_name, ' ', C.last\_name) AS fullname, C.job\_title

FROM Customer C

WHERE C.customer\_id NOT IN

(SELECT customer\_id FROM Orders O);

1. Select first\_name, last\_name, shipping\_company and order\_date for all records from Customers table but ONLY matching records from Orders table for order\_date after August 31st 2019.

SELECT C.first\_name, C.last\_name, O.shipping\_company, O.order\_date

FROM Customer C

RIGHT JOIN Order O ON C.customer\_id = O.customer\_id

WHERE O.order\_date > ‘8/31/2019’;

1. Write a SQL statement selecting shipping\_company, order\_date and their rank with most recent order\_date rank first and so on.

SELECT O.shipping\_company, O.order\_date, RANK()

OVER (ORDER BY O.order\_date ASC) AS ‘rank’

FROM Orders O;

1. Select first\_name, last\_name and shipping\_company for matching records from both tables for customers first\_name **ends** with **a** and sort by most recent order\_date first.

SELECT C.first\_name, C.last\_name, O.shipping\_company

FROM Customer C

INNER JOIN Orders O ON C.customer\_id = O.customer\_id

WHERE C.first\_name LIKE ‘%a’

ORDER BY order\_date ASC;

1. Write a SQL statement to find shipping\_company and their count whose count is greater than 2.

SELECT O.shipping\_company, COUNT(O.shipping\_company) AS shipping\_company\_num

FROM Orders O

GROUP BY O.shipping\_company

HAVING COUNT(shipping\_company) > 2;

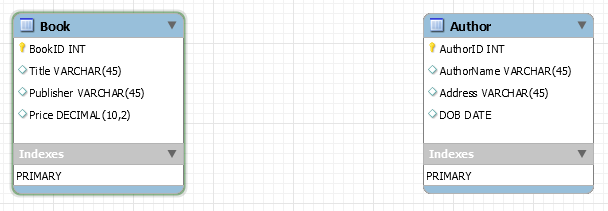
**Section 4: Create relationship for below tables, use proper symbols, lines and captions**

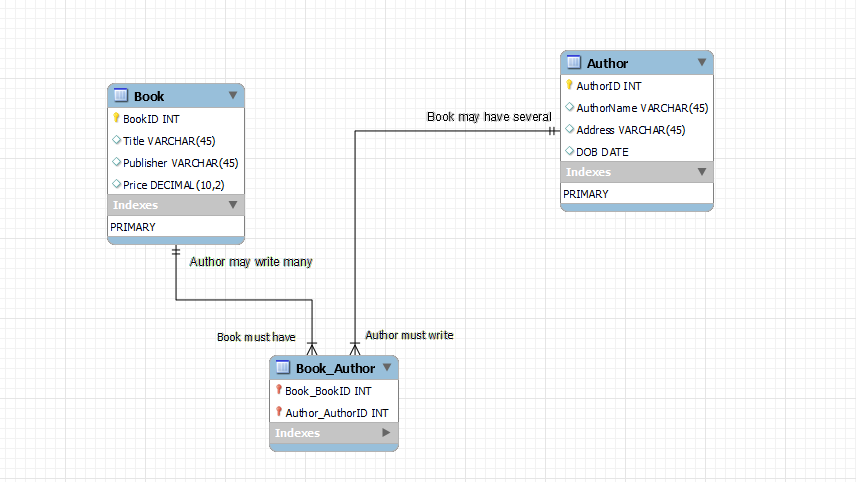
**Total Points: 3**

**Note: Create Book and Author tables as below and solve relationship using MySQL Workbench Data Model (ERD).**

**DDL generation NOT NEEDED.**

1. A Book **can be written** by several Authors
2. An Author **can write** several Books

Assumption: Each book must have an author and each author must write a book. 



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