DB Fundamentals Exam

* Required

Answer the following questions

2

Which of the following refers to the number of entities in a relation? *
(1 Point)

- 🔘 Degree
- ⭕ Cardinality
- ⭕ Participation

3

The primary key is selected from the: * (1 Point)

- ⭕ Composite keys
- ⭕ Determinants
- 🔘 Candidate keys
- ⭕ Foreign keys

4

Third normal form is based on the concept of _____ * (1 Point)

◯ Closure Dependency

◯ Transitive Dependency

◯ Normal Dependency

⦿ Functional Dependency

5

Which one of the following commands is used to modify a column inside a table? * (1 Point)

◯ Drop

⦿ Update

◯ <mark>Alter</mark>

◯ Set

6

Which of the following keys is generally used to represents the relationships between the tables? * (1 Point)

◯ Primary key

⦿ Foreign key

◯ Secondary key

◯ None of the above

7

The degree of a relation refers to the number of entity classes in the relation * (1 Point)

⦿ True

◯ False

8

In ER Diagram, derived attribute are represented by * (1 Point)

◯ Ellipse

⦿ Dashed ellipse

◯ Rectangle

◯ Triangle

9

An attribute of relation schema R, that is not a part of Primary key is always considered as Non-Prime attribute * (1 Point)

◯ True

⦿ False

10

The rule that a value of a foreign key must appear as a value of some specific table is called a _____ * (1 Point)

⦿ Referential integrity

◯ Entity integrity

◯ Unique integrity

◯ Dependent integrity

11

Grant and revoke are _____ statements. * (1 Point)

◯ DDL

◯ TCL

⦿ DCL

◯ DML

12

How data is actually stored can be expressed by the _____ * (1 Point)

⦿ Physical level

○ Logical level

○ Model level

○ View level

13

In ER Diagram, double line indicates _____ * (1 Point)

○ Derived attributes

○ Multi-values attributes

◉ Total participation

○ Weak Entity

14

A function that has no partial dependency is in _____ form * (1 Point)

○ 3NF

◉ 2NF

○ 4NF

○ 1NF

15

An index helps to speed up? * (1 Point)

◉ SELECT queries

◯ INSERT queries

◯ UPDATE queries

16

"AS" clause is used in SQL for * (1 Point)

◯ Selection

◉ Rename

◯ Join

◯ Projection

17

A table joined with itself is called _____ * (1 Point)

◉ Self Join

◯ Outer Join

◯ Equi Join

18

The Inner query is executed first then the outer query * (1 Point)

◉ True

○ False

19

Write a query to display all the details about employees with a salary between
8000 and 10000. * (2 Points)

Employee table

id	first_name	last_name	salary	joining_date	dep
1	Abdullah	Ashraf	12000	2019-01-20	Fina
2	Hassan	Mohamed	8000	2019-01-15	IT
3	Ahmed	Shokry	10000	2019-02-05	Ban
4	Mohamed	Kareem	8900	2019-02-25	Insu
5	Farid	Sayed	7000	2019-05-28	Fina
6	Mohab	Mohamed	9500	2019-05-10	IT
7	Eslam	Emad	6500	2019-06-20	Ban
8	Farid	Ahmed	8000	2019-06-21	IT

SELECT *
FROM Employee
WHERE salary BETWEEN 8000 AND 10000;

20

Write a query to display the average salary for each department *
(2 Points)

Employee table

id	first_name	last_name	salary	joining_date	dep...
1	Abdullah	Ashraf	12000	2019-01-20	Fina
2	Hassan	Mohamed	8000	2019-01-15	IT
3	Ahmed	Shokry	10000	2019-02-05	Ban
4	Mohamed	Kareem	8900	2019-02-25	Insu
5	Farid	Sayed	7000	2019-05-28	Fina
6	Mohab	Mohamed	9500	2019-05-10	IT
7	Eslam	Emad	6500	2019-06-20	Ban
8	Farid	Ahmed	8000	2019-06-21	IT

SELECT department, AVG(salary) AS average_salary
FROM Employee
GROUP BY department;

21

Write a query to display employees whose salary is more than the average salary in that company. * (2 Points)

Employee table

id	first_name	last_name	salary	joining_date	dep
1	Abdullah	Ashraf	12000	2019-01-20	Fina
2	Hassan	Mohamed	8000	2019-01-15	IT
3	Ahmed	Shokry	10000	2019-02-05	Ban
4	Mohamed	Kareem	8900	2019-02-25	Insu
5	Farid	Sayed	7000	2019-05-28	Fina
6	Mohab	Mohamed	9500	2019-05-10	IT
7	Eslam	Emad	6500	2019-06-20	Ban
8	Farid	Ahmed	8000	2019-06-21	IT

SELECT *
FROM Employee
WHERE salary > (SELECT AVG(salary) FROM Employee);

22

Write a query to get all the details about employees whose first name contains 'a'. * (2 Points)

Employee table

id	first_name	last_name	salary	joining_date	dep
1	Abdullah	Ashraf	12000	2019-01-20	Fina
2	Hassan	Mohamed	8000	2019-01-15	IT
3	Ahmed	Shokry	10000	2019-02-05	Ban
4	Mohamed	Kareem	8900	2019-02-25	Insu
5	Farid	Sayed	7000	2019-05-28	Fina
6	Mohab	Mohamed	9500	2019-05-10	IT
7	Eslam	Emad	6500	2019-06-20	Ban
8	Farid	Ahmed	8000	2019-06-21	IT

SELECT *
FROM Employee
WHERE first_name LIKE '%a%';

23

Write a query to increase the salary of employees in IT department by 10%
* (2 Points)

Employee table

id	first_name	last_name	salary	joining_date	dep
1	Abdullah	Ashraf	12000	2019-01-20	Fina
2	Hassan	Mohamed	8000	2019-01-15	IT
3	Ahmed	Shokry	10000	2019-02-05	Ban
4	Mohamed	Kareem	8900	2019-02-25	Insu
5	Farid	Sayed	7000	2019-05-28	Fina
6	Mohab	Mohamed	9500	2019-05-10	IT
7	Eslam	Emad	6500	2019-06-20	Ban
8	Farid	Ahmed	8000	2019-06-21	IT

UPDATE Employee
SET salary = salary * 1.10
WHERE department = 'IT';

24

Write a query to fetch the list of employees with the same salary. *
(2 Points)

Employee table

id	first_name	last_name	salary	joining_date	dep...
1	Abdullah	Ashraf	12000	2019-01-20	Fina
2	Hassan	Mohamed	8000	2019-01-15	IT
3	Ahmed	Shokry	10000	2019-02-05	Ban
4	Mohamed	Kareem	8900	2019-02-25	Insu
5	Farid	Sayed	7000	2019-05-28	Fina
6	Mohab	Mohamed	9500	2019-05-10	IT
7	Eslam	Emad	6500	2019-06-20	Ban
8	Farid	Ahmed	8000	2019-06-21	IT

```
SELECT *
FROM Employee
WHERE salary IN (
    SELECT salary
    FROM Employee
    GROUP BY salary
    HAVING COUNT(*) > 1
);
```

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