**CLASS EXERCISE (LECTURE) 14th October 2024**

Take a look at these department, staff, and research table below:

Table 1: Department

|  |  |  |
| --- | --- | --- |
| **DID** | **DName** | **Location** |
| 1 | Engineering | A1 |
| 2 | Business | A2 |
| 3 | Artificial Intelligence | A3 |
| 4 | Journalism | A4 |
| 5 | Computing | A5 |

Table 2: Staff

|  |  |  |  |
| --- | --- | --- | --- |
| **SID** | **SName** | **SAge** | **DID** |
| S1 | Amanda | 30 | 3 |
| S2 | Wong | 32 | 4 |
| S3 | Jessy | 45 | 5 |
| S4 | Alex | 50 | 5 |
| S5 | Melwin | 60 | 1 |

Table 3: Research

|  |  |  |  |
| --- | --- | --- | --- |
| **RNo** | **SID** | **StartDate** | **EndDate** |
| 901 | S1 | 1/2/2022 | 30/08/2022 |
| 902 | S3 | 1/4/2021 | 30/10/2021 |
| 903 | S2 | 1/1/2023 | 30/08/2023 |

Based on the tables above, answer the following:

1. Construct an appropriate **SQL query** (Create Table) for the following table with proper datatype and contraints:
   1. Department **(3 Marks)**
   2. Staff  **(3 Marks)**
2. When simulating the design of a relational database, we can include limitations on the kinds of updates and deletions that are permitted as well as the values that can be entered into the relation.

Discuss the role that the relational databases' domain integrity constraints played using examples that are related to ‘Research’ table above. **(4 Marks)**

1. Write the **SQL statement** and **draw the output table** for the following questions, based on the tables above.

\* SQL statement (4 Marks) and draw output table (1 Mark)

1. Display the staff name, identification number and starting date of their research who’s the age is above 40. **(5 Marks)**
2. Find the information about the staff who have yet to complete their research (on going). **(5 Marks)**
3. What is the average of staff’s age who has completed their research?

**(5 Marks)**

1. Retrieve the information about the department name, staff identification number as well as staff’s name who has yet to start any research in their department. **(5 Marks)**