MARKING SCHEME (14TH OCTOBER 2024) CLASS EXERCISE

Course Code: **SOF202**

Course Name: **Database**

5 [CLO4, C3]		
	a) Construct an appropriate **SQL query** (Create Table) for the following table with proper datatype and contraints:-	
	i. <mark>Department</mark> Create Table Department (DID int Not Null, Department Varchar (50) Not Null, Location Varchar (2) Not Null, Primary Key (DID));	**3M**
	ii. <mark>Staff</mark> Create Table Staff (SID Varchar (2) Not Null, SName Varchar (50) Not Null, SAge int, DID Varchar (5) Not Null, FOREIGN KEY (DID) REFERENCES Department (DID));	**3M**

	b) Discuss the role that the relational databases' domain integrity constraints played using examples that are related to 'Research' table above.
	  • According to the entity integrity requirement, the primary key value cannot be empty.
	  • This is so that we can identify certain rows in a relationship; but, if the primary key value is null, we are unable to do so.
	  • The primary key field is the only field in a table that cannot have a null value.
		2pt x 2M= 4M

c) Construct a proper SQL query for the following questions.

i. Display the staff name, identification number and starting date of their research whose the age is above 40.

SELECT Staff.SName, Staff.SID, Research.StartDate

FROM Staff, Research

WHERE Staff.SAge > 40

    AND Staff.SID = Research.SID ;

Query: **4M**

	SName	SID	StartDate ▲
▶	JESSY	S3	2021-01-04

Output table: **1M**

ii. Find the information about the staff who have yet to complete their research (on going).

SELECT DISTINCT Staff.SName, Research.EndDate

FROM Staff, Research, Department

WHERE (Research.EndDate > CURRENT_DATE)

 AND Staff.SID = Research.SID ;

Query: **4M**

	SName	EndDate
▶	WONG	2023-08-30

Output table: **1M**

iii. What is the average of staff's age who has completed their research?

SELECT AVG (Staff.SAge) AS Avg_Staff_Age

FROM Staff, Department, Research

WHERE (Research.EndDate < CURRENT_DATE)

AND Staff.SID = Research.SID

AND Staff.DID = Department.DID;

Query: **4M**

Avg_Staff_Age
▶ 37.5000

Output table: **1M**

iv. Retrieve the information about the staff identification number who has yet to start any research in their department.

SELECT Staff.SID

FROM Staff

EXCEPT

SELECT Research.SID

FROM Research;

Result Grid		
	SID
▶	S5
	S4

** Student may also use proper JOIN or MULTISELECT query to show the part (iv) above.

Query:
4M

Output table:
1M

[TOTAL 30M]