AL-QALAM UNIVERSITY KATSINA
COLLEGE OF COMPUTING AND INFORMATION SCIENCE (CIS)
DEPARTMENT OF SOFTWARE ENGINEERING AND CYBER SECURITY

Session: 2023/2024 | **Semester: 1st Semester**
Course Title: Database Design and Management | **Course Code: SEN3312**
Instruction: Attempt any four (4) questions | **Time allowed: 3 hours**

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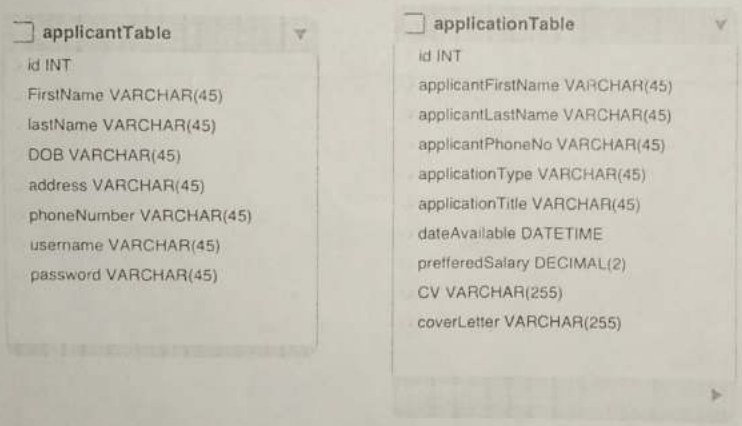
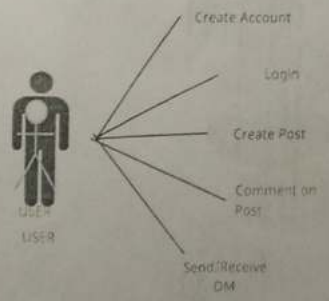
1. Outline at least two tables, each of the table with at least 4 fields/columns for the following functionality of a university management system
   i) Course management {5 Marks}
   ii) Faculty management {5 Marks}
   iii) Student management {5 Marks}
2. a) Consider the following information of a database table



   i) What kind of anomaly will the database possibly suffer from? {5 Marks}
   ii) Redesign the database tables to address any possible anomaly. {10 Marks}

3. The following is a use case diagram for a system, design a minimal database for the system and show the relationship between the tables in the database.

   {15 Marks}



4. Consider the following **departmentTable**.

id	facultyId	departmentName	departmentHead
1	1	Software&Cyber	Prof Kwankwanso
2	1	Computer Science	Prof Peter
3	1	Mth&Stats	Prof Tinubu
4	1	others	Prof

i) Write an SQL statement to delete the record with departmentName:**others** {3 Marks}

ii) Write an SQL statement to add a record with the following information (facultyId:1, departmentName:**Information Technology**, departmentHead: **Prof Bello**) {3 Marks}

iii) Write an SQL statement to update the **departmentName** column of the first three records to **Software Engineering & Cyber Security**, **Computer Science & Information Technology**, and **Mathematics & Statistics** respectively. {9 Marks}

5. Consider the following **courseTable**

id	code	creditUnit	programmeId	isCore Course	isDepartmental Course	isGspCourse
1	sen3312	3	1	1	1	0
2	Sen2215	2	1	1	1	0
3	csc1312	3	2	0	1	0
4	Csc2314	3	3	1	1	0
5	GSP2221	2	11	0	0	1
6	GSP2314	3	11	1	0	1

i) Write an SQL statement to retrieve all GSP courses. {5 Marks}
ii) Write an SQL statement to retrieve all core courses with credit units above 2. {5 Marks}
iii) Write an SQL statement to Update the credit unit of all GSP courses to 2. {5 Marks}

6. Consider the following **playerTable**

id	name	age	team	goal	assist
12	Messi	45	Psg	23	12
13	C Ronaldo	40	Man U	19	11
14	Benzema	30	Real Mad	15	10
15	Idris	25	Chelsea	14	22
16	M Salah	37	Liverpool	21	12
17	Aguero	34	Arsenal	34	7
18	Lampard	23	Man City	22	5
19	Ibrahimovic	50	Ac Milan	10	3

i) Write a SQL statement to retrieve players from **PSG, Chelsea, Liverpool** and **Arsenal** players. {5 Marks}

ii) Write a SQL statement to retrieve players in the age bracket of 20 - 35. {5 Marks}

iii) Write a SQL statement to retrieve all players whose name starts with the letter 'I'. {5 Marks}