TAKORADI TECHNICAL UNIVERSITY
FACULTY OF APPLIED SCIENCES
DEPARTMENT OF MATHEMATICS, STATISTICS AND ACTUARIAL SCIENCES
2021/2022 SECOND SEMESTER EXAMINATION

PROGRAMME: 2- YEAR BTECH STATISTIC YEAR: 1
COURSE: DATABASE CONCEPTS

Answer any four (4) questions. Duration 2 hours 30 mins.
Each question carries 25 marks (100 marks)

1. (a) Define the following database terms
   (i) Database
   (ii) DBMS
   (iii)Relation
   (iv)Attribute
   (v) Tuple (4 marks each)

   (b) Give 5 sample examples of database uses in our everyday lives. (5 marks each)

2. (a) Differentiate between data and Information (6 marks)
   (b) With the aid of a diagram describe Three-level Database architecture (7 marks)
   (c) Differentiate between File-Based approach and Database approach (6 marks)
   (d) Give two disadvantages of File-Based approach. (6 marks)

3. (a) Give three advantages and two disadvantages of Database Management System (DBMS) (10 marks)
   (b) Give three examples of a database Management Software (6 marks)
   (c) Write the following abbreviations in full as applied to Database Terminologies
      (i) SQL
      (ii) DML
      (iii) ACID (3 marks each)

4. (a)List and briefly explain three the components of a database management system (12 marks)
   (b) Explain the difference between data dependence and data independence (8 marks)
   (c) What is the advantage to using views (5 marks)

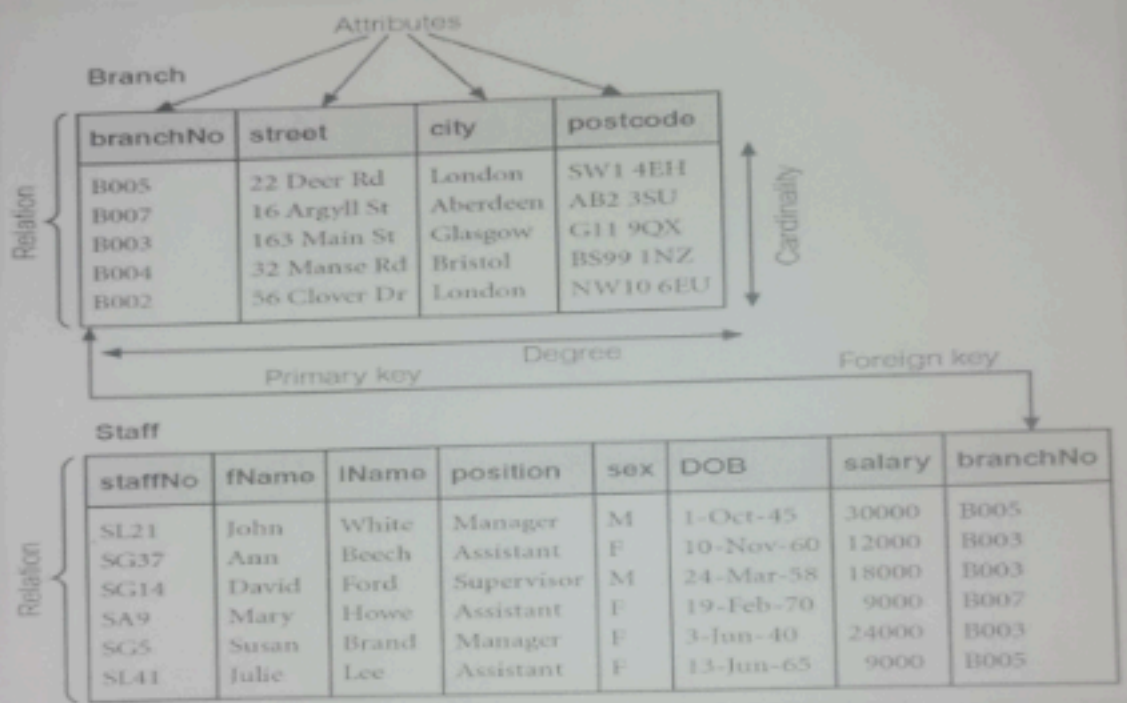
Q5. (a) Explain the purpose/use of the following SQL Commands

(i) DROP

(ii) DELETE

(iii) INSERT (6 marks)

(b) Use the diagram to answer the following.



Branch

branchNo	street	city	postcode
B005	22 Deer Rd	London	SW1 4EH
B007	16 Argyll St	Aberdeen	AB2 3SU
B003	163 Main St	Glasgow	G11 9QX
B004	32 Manse Rd	Bristol	BS99 1NZ
B002	56 Clover Dr	London	NW10 6EU

Staff

staffNo	fName	lName	position	sex	DOB	salary	branchNo
SL21	John	White	Manager	M	1-Oct-45	30000	B005
SG37	Ann	Beech	Assistant	F	10-Nov-60	12000	B003
SG14	David	Ford	Supervisor	M	24-Mar-58	18000	B003
SA9	Mary	Howe	Assistant	F	19-Feb-70	9000	B007
SG5	Susan	Brand	Manager	F	3-Jun-40	24000	B003
SL41	Julie	Lee	Assistant	F	13-Jun-65	9000	B005

Domain, Relation, Degree, Attribute, Tuple, Foreign Key, Primary Key, Super key, Cardinality

	DESCRIPTION	TERM
i)	A row in a relation	
ii)	The number of tuples in a relation	
iii)	The number of attributes in a relation	
iv)	A table with columns and rows	
v)	A named column of a relation	
vi)	A key that uniquely identifies a record/tuples in a relation	
vii)	Attribute, or set of attributes, within one relation that matches candidate key of some relation.	

(c) From the diagram in (b), write the output of the following SQL statements when executed.

(i) SELECT staffNo, fname,,lname FROM Staff WHERE sex ="F" and position = 'Manager';

(ii) SELECT branchNo FROM branch WHERE city='London;'

(5 marks)

END OF PAPER