CRAWFORD UNIVERSITY, FAITH CITY, IGBESA

COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES
HARMATTAN SEMESTER **SESSION: 2021/2022**

COURSE CODE: CSC307
COURSE TITLE: DATABASE DESIGN AND MANAGEMENT
UNITS: 3
TIME: 2:30HOURS

SECTION A (ANSWER ALL)

1.

Consider the following relational database schema consisting of the four relation schemas:

passenger (pid, pname, pgender, pcity)

agency (aid, aname, acity)

flight (fid, fdate, time, src, dest)

booking (pid, aid, fid, fdate)

Answer the following questions using relational algebra queries;

a. Get the complete details of all flights to Lagos
b. Get the details about all flights from Kano to Lagos.
c. Find only the flight numbers for passenger with pid 123 for flights to Kano before 06/11/2020.
d. Get the details of flights that are scheduled on either of the dates 01/12/2020 or 02/12/2020 or both at 16:00 hours.
e. Find the passenger names for those who do not have any bookings in any flights 20mrk

2. In XYS Limited. A salesperson may manage many other salespeople. A salesperson is managed by only one salespeople. A salesperson can be an agent for many customers. A customer is managed by one salespeople. A customer can place many orders. An order can be placed by one customer. An order lists many inventory items. An inventory item may be listed on many orders. An inventory item is assembled from many parts. A part may be assembled into many inventory items. Many employees assemble an inventory item from many parts. A supplier supplies many parts. A part may be supplied by many suppliers.

i. Write out the business rules for the scenario above.

ii. Draw the ERD for the business rules

iii. Write a query to display salesperson whose customer is more than 30 20marks

SECTION B ANSWER ANY TWO QUESTIONS

3.

EmployeeID	Employee_name	City	Grade
3002	Nick Rimando	New York	100
3005	Graham Zusi	California	200
3001	Brad Guzan	London	250
3004	Fabian Johns	Paris	300
3007	Brad Davis	New York	200
3009	Geoff Camero	Berlin	100
3008	Julian Green	London	300
3003	Jozy Altidor	Moscow	200

i. Write a query to create a database called "Employee"
ii. Write a query to generate the table above and the information contained
iii. Write a query to remove an employee whose grade is less than 250
iv. Write a query to display number of employee who stay in a particular area
v. Write a query to display an employee whose grade is than the maximum grade
vi. Write a query to display employee whose name contain "go" 10marks

4a. What is a database transaction 2marks

b. Explain with the aids of diagram how transaction works 3marks

c. List three importance of transaction log 3marks

d. Explain the two SQL transaction statement used in distributed database. 2marks

5a. Explain the following i. Mapping cardinality ii. Schema iii. Normalization iv. 3-tier Architecture

i. Serialization 5marks

b. Give the following queries in the relational algebra using the relational schema

Student (id, name)

enrolledIn (id, code)

courses (code, lecturer)

i. What are the codes of all the courses taught?

ii. What are the names of all the students?

iii. What are the names of all the students in CSC307?

iv. What are the names of students taking a subject taught by Dr.Akinjobi.

v. What are the names of students who are taking a subject not taught by Dr.akinjobi? 5marks