MAKERERE UNIVERSITY
COLLEGE OF COMPUTING & INFORMATION SCIENCES
SCHOOL OF COMPUTING & INFORMATICS TECHNOLOGY

CSC2107 DATABASE MANAGEMENT SYSTEMS
TEST 2 (Computer Science Year-2 A) 2022/2023

TIME ALLOWED: 1 Hour 15 Minutes
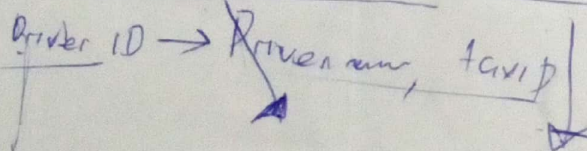
Instructions
1. Attempt all questions

Question One

A company called *FastCab* provides a taxi service to clients. The table below represents the First Normal Form (1NF) for a client bookings for taxis. Study it and answer the following questions.

a) Identify the functional dependencies that exist between the columns in the table. **(5 Marks)**

b) Describe and illustrate the process of normalizing the attributes shown in the table to produce a set of well-designed 3NF (*Third Normal Form*) Relations. **(15 Marks)**

c) Identify the primary, alternate and foreign keys in your 3NF relations. **(5 Marks)**

d) Identify any relationships between the 3NF relations in (b) above **(5 Marks)**

e) Create an Entity Relationship (E-R) Model to represent the data stored by FastCab company based on the 3NF relations in (b) and the relationships in (d) above. **(10 Marks)**

JobID	JobDate Time	driverID	driver Name	taxiID	clientID	clientName	jobPickUpAddress
1	25/07/14 10.00	D1	Joe Bull	T1	C1	Anne Woo	1 Storrie Rd, Paisley
2	29/07/14 10.00	D1	Joe Bull	T1	C1	Anne Woo	1 Storrie Rd, Paisley
3	30/07/14 11.00	D2	Tom Win	T2	C1	Anne Woo	3 High Street, Paisley
4	2/08/14 13.00	D3	Jim Jones	T3	C2	Mark Tin	1A Lady Lane, Paisley
5	2/08/14 13.00	D4	Steven Win	T1	C3	John Seal	22 Red Road, Paisley
6	25/08/14 10.00	D2	Tom Win	T2	C4	Karen Bow	17 High Street, Paisley

Driver ID → Driver name, taxiD

~ END ~