University of Central Punjab
(Incorporated by Ordinance No. XXIV of 2002 promulgated by Government of the Punjab)
FACULTY OF INFORMATION TECHNOLOGY

Introduction to Database Systems

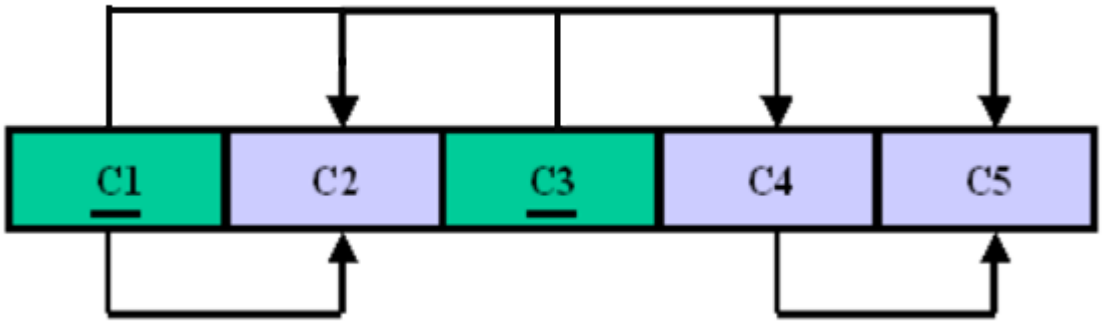
Assignment 4 — Total Marks: 100

Submission:

1. Submit the Hardcopy of your assignment.
2. The deadline for hardcopy is Monday July 03, 2023.
3. No late and retake submissions will be entertained, otherwise there will be plenty of deduction in marks.

Question 1: (20)

For the given dependency diagram identify the type for each of the given functional dependency. (i.e., Partial Functional Dependency, Full Functional Dependency, or Transitive Functional Dependency). Provide appropriate reasons for your choice.



Question 2: **(30)**

Put the relation below in normalized form (Till 3NF)

OID	O_Date	CID	C_Name	C_City	PID	P_Desc	P_Price	Qty
1006	10/24/21	2	Ali	LHR	7,5,4	Table, Desk, Chair	8000, 6250, 3000	1,1,5
1007	10/25/21	6	Ahmad	FSD	11,4	Dresser, Chair	5000, 3000	4,6

Where OID = Order ID, O_Date = Order Date, CID = Customer ID, C_Name = Customer Name, C_City = Customer's City, PID = Product ID, P_Desc = Product Description, P_Price = Product Price, Qty = Quantity Purchased

Note: 7, 5, 4 means three Product IDs. Similarly, 1, 1, 5 means three Quantities.

Functional Dependencies are:

OID -> O_Date
CID -> C_Name
PID -> P_Desc
PID -> P_Price
OID -> CID
CID -> C_State
PID, OID -> Qty

Question 3: **(30)**

Examine the table shown below. Identify relevant functional dependencies and normalize till 3NF.

Staff_Number	Branch_Number	Branch_Address	Name	Position	House_Per_Week
S4555	B002	City Center, Plaza, LHR	Ali	Assistant	16
S4555	B004	14th Avenue, LHR	Ali	Assistant	9
S4612	B002	City Center Plaza, LHR	Ahmad	Assistant	14
S4612	B004	14th Avenue, LHR	Ahmad	Assistant	10

Question 4: **(20)**

Consider the following relation:

A	B	C
10	b1	c1
10	b2	c2
11	b4	c1
12	b3	c4
13	b1	c1
14	b3	c4

Given the data base state which of the following dependencies may hold in the above relation? If the dependency cannot hold, explain why by specifying the rows that cause the violation.

i. $A \rightarrow B$
ii. $B \rightarrow C$
iii. $C \rightarrow B$
iv. $B \rightarrow A$
v. $C \rightarrow A$