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|  | **Database Management Systems**  **BSCS-4**  **Department of Computer Science**  **Bahria University, Lahore Campus** |

**Assignment: [4]**

Date: Week 15, 03 January 2024

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Roll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Evaluation of CLO** | **Question Number** | **Marks** | **Obtained Marks** |
| **CLO: Analyze user requirements to design a database for the given scenarios** |  |  |  |
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| **Total Marks** | | **20** |  |

**Question 1**

A table contains sample data for parts and for vendors who supply parts. The part numbers uniquely identify parts and that vendor names uniquely identify vendors.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Part\_No | Description | Vendor\_Name | Address | Unit\_Cost |
| 1234 | Logic chip | Ejaz | Peoples colony | 10.00 |
|  |  | Naeem | Medina town | 8.00 |
| 5678 | Memory chip | Ali Raza | Peoples colony | 3.00 |
|  |  | Anjum | Raza Abad | 2.00 |
|  |  | Nasir | Saeed colony | 5.00 |

1. Convert this table to a relation (named PART SUPPLIER) in first normal form. Illustrate the relation with the sample data in the table.
2. List the functional dependencies in PART SUPPLIER and identify a candidate key.
3. For the relation PART SUPPLIER, identify each of the following: an insert anomaly a delete anomaly and a modification anomaly.
4. Draw a relational schema for PART SUPPLIER and show the functional dependencies.
5. In what normal form is this relation?

**Question 2**

Examine the Patient Medication Form for Civil Hospital as follows:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Civil Hospital  Patient Medication Form | | | | | | | |
| Patient Number:9876  Full Name: Ali Ahmad Ward Number: W11  BedNumber: 87 Ward Name: Fatima | | | | | | | |
| Drug Number | Name | Description | Dosage | Method of Admin | Units per Day | Start Date | Finish Date |
| 10223  10334  10223 | Morphine  Tetracycline  Morphine | Pain Killer  Antibiotic  Pain Killer | 10mg/ml  0.5mg/ml  10mg/ml | Oral  IV  Oral | 50  10  10 | 24/03/01  24/03/01  25/04/02 | 25/04/02  17/04/01  02/05/03 |

1. Identify the functional dependencies represented by the data shown in the form in
2. Describe and illustrate the process of normalizing the data shown in Figure to first (1 NF), second (2NF), third (3NF), and BCNE
3. Identify the primary, alternate, and foreign keys in your BCNF relations