**Nagarjuna College of Information Technology**

**Full Marks: 60**

**Pass Marks: 30**

**Time: 3 hrs.**

**Shankhamul -09, Lalitpur**

**SET - A**

**Pre-Board Examination 2080**

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| **BIM / Fourth Semester / IT 220: Database Management System** |

***Candidates are required to answer the questions in their own words as far as possible.***

**GROUP-A**

**Attempt all the questions [10×1=10]**

1. Define database security.
2. Define distributed database.
3. Differentiate between centralized and distributed database.
4. Define weak entity set.
5. Define user in DBMS.
6. Describe role of DBA.
7. Define 2NF.
8. Define ER data model.
9. Define types of relationship.
10. Define encryption.

**GROUP-B**

**Attempt any *SIX* questions [6×5=30]**

1. Describe about client server architecture.
2. Describe about different attributes.
3. Differentiate between naïve user and DBA.
4. Justify the statement ***“ER diagram is work as blue print for good database design”***
5. Describe about database performance tuning.
6. Advantages and Disadvantages of distributed database management system.
7. Describe about NoSQL.

**GROUP-C**

**Attempt any *TWO* Questions [2×10=20]**

1. Design ER diagram for grocery shop and assume your own entity and attribute if required.
2. Write a SQL to create following relations and insert minimum 3 records in each relation. Solve all the SQL questions.

Employee (**EID**, ename, address, phone, email, salary, position, commission\_pct)

Department (**DID**, dname, location)

**Works** (wid, eid, did, date)

1. Write a SQL Statement to display the employee’s name who is from lalitpur.
2. Write a SQL Statement to display the employee’s information who are getting salary greater than 100000.
3. Write a SQL Statement to display the employees’ name whose name start with N.
4. Write a SQL Statement to count the total employee’s records in the table.
5. Write a SQL Statement to display the employee’s name and department name with who is working in IT department.
6. Convert the following table up to 3 NF.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CUSTOMER\_ID** | **Customer\_Name** | **Address** | **Phone** | **Pid** | **Pname** |
| 101 | Nilam | Kathmandu | 9711,9811 | P1 | Apple |
| 102 | Pragya | Kailali | 98511,9822 | P2 | Dell |
| 103 | Ashok | Kanchanpur | 9811,9815 | P1 | Apple |
| 104 | Nirajan | ilam | 9811,9812 | P3 | Accer |

**Nagarjuna College of Information Technology**

**Full Marks: 60**

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**Shankhamul -09, Lalitpur**

**SET - B**

**Pre-Board Examination 2080**

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| --- |
| **BIM / Fourth Semester / IT 220: Database Management System** |

***Candidates are required to answer the questions in their own words as far as possible.***

**GROUP-A**

**Attempt all the questions [10×1=10]**

1. Describe about DBMS.
2. List out the features of DBMS.
3. Describe weak entity.
4. Define three tier schema architecture.
5. List out the benefits ER diagram.
6. Define schema.
7. Define structural constraints.
8. Differentiate between left outer join and right outer join.
9. Define transitive functional dependency.
10. Describe about 2NF.

**GROUP-B**

**Attempt any *SIX* questions [6×5=30]**

1. Explain operators used in relational algebra.
2. Describe about different data models.
3. Differentiate between Generalization and Specialization.
4. Justify the statement ***“ACID is significance for transactions in any organization”***
5. Mention the function of DBA.
6. Differentiate between data warehousing and data mining.
7. Describe about database security.

**GROUP-C**

**Attempt any *TWO* Questions [2×10=20]**

1. Design ER diagram with the help of following scenario.

Nationwide Information Technology is software company, where many employees are working together. It has many customers who are getting service from here. It has many departments i.e. HR, Amin, and IT. Assumed your own entities and attributes if required.

1. Write a SQL to create following relations and insert minimum 3 records in each relation. Solve all the SQL questions.

Customer (**CID,** cname, address, phone, email)

Product (**PID**, Pname, price, quantity)

Purchase (**Purid,** cid, pid, date)

1. Write a SQL Statement to display the customer’s name who is from lalitpur.
2. Write a SQL Statement to display the customer’s information who have purchased dell monitor.
3. Write a SQL Statement to display the customer’s name whose name start with P.
4. Write a SQL Statement to count the total customer’s records in the table.
5. Write a SQL Statement to display the customer’s name and product name with who had purchased on 2024-1-30.
6. Convert the following table up to 3NF.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **STUDENT\_ID** | **Student Name** | **Phone** | **Sate** | **city** |
| 1 | Alex | 9811,9812 | Bagmati | Kathmandu |
| 2 | Michal | 9822,9813 | Karnali | Jumla |
| 3 | Keren | 9817,9877 | Bagmati | Kathmandu |
| 4 | Martin | 9713,98511 | Koshi | Biratnagar |
| 5 | Philips | 98511 | Koshi | Biratnagar |