**Kathmandu BernHardt College**

**Bafal, Kathmandu**

**Pre-Board Examination -2070**

**Faculty: Science Set ‘A’ FM: 60**

**Subject: Database Management System (CSC-253) PM: 24**

**Level: BSc CSIT IV SEM Time: 3 hrs**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

**Group-A**

**Attempt all questions: (12\*5=60)**

1. Answer the following questions in short: (5\*1=5)
2. What is the role of storage manager?
3. What do you mean by lossless property of RDBMS?
4. What is relational calculus?
5. What is null value?
6. Define second normal form.
7. What is data model? Construct an E-R diagram for an airline company showing each type of attributes.
8. Consider a database with following relations:  
    Employee (employee\_name, street, city)  
    Works (employee\_name, company\_name, salary)  
    Company (company\_name, city)  
    Manages (employee\_name, manager\_name)  
   Write Relational Algebra and SQL statement for the following.
9. Find the names and cities of employee who works for the “Microsoft Company”
10. Find the name of employees whose names start from “U” and whose manager is “Sanjaya”.
11. Find the name of employees whose salary is greater than average salary.
12. Decrease the salary of employees by 10% on employee relation whose balance is greater or equal to 50000.
13. Find all employees in database who do not work for “Microsoft Company.
14. Explain the check point with example.
15. What is transaction processing? Explain the properties of transaction.
16. What is serializable schedule? Explain the view serializability.
17. Define two phase locking protocol. What are the problems in two phase locking and how they can be solved?
18. What is role? Why and how it is used explain briefly.
19. Explain the triggers and assertion with its needs and syntax.
20. Define integrity Constraints. Explain it with its advantages and types.
21. Why functional dependency is important? Explain the different types of FD.
22. What is non loss decomposition? Explain the BCNF with appropriate relations.

\*\*\*\*\*GOOD LUCK\*\*\*\*\*

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**Level: BSc CSIT IV SEM Time: 3 hrs**

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**Attempt all questions: (12\*5=60)**

1. Answer the following questions in short: (5\*1=5)
2. What is referential integrity? Give an example.
3. Define assertion with its syntax.
4. What is query processor?
5. Define BCNF.
6. What is descriptive attributes.
7. Construct the E-R diagram for Hotel Management system showing each type of attributes.
8. Consider a database with following relations:  
   Employee(Emp\_no,Emp\_name,Designation,Salary,Dept\_no)  
   Department(Dept\_no,Dept\_name,Dept\_loc)

Write Relational Algebra and SQL statement for the following:  
a. List the employees who are earning more than 4000 and less than 6000.  
b. List the employees whose department name is ‘Sales’ in the order of Designation.  
c. List all the total number of employees in each department.  
d. List the names of those employees whose name starts with ‘S’  
e. Calculate the total salary, minimum salary ,maximum salary, average salary of each department.

1. Explain the database buffering with its merits and demerits.
2. What is compensating transaction? Explain the transaction state with example.
3. Explain the conflict serializability.
4. What are the principle methods for dealing with dead lock problem? Explain the different approaches for dead lock prevention.
5. What do you mean by irreducible functional dependency? Explain with properties.
6. Explain the attributes closure with examples and application.
7. Why normalization is required? Explain 1NF, 2NF, 3NF with examples.
8. Define inner join and outer join operation in SQL.
9. What is view? Explain the problems arise when one attempt to update view.

\*\*\*\*\*GOOD LUCK\*\*\*\*\*