

KATHMANDU UNIVERSITY
End Semester Examination
February/March, 2018

MAR 15 2018
Course : COMP 232
Semester: II
F.M. : 40

Level : B.Sc.
Year : II
Time : 2 hrs. 30 mins.

SECTION "B"
[2 Q.×8=16 marks]

Attempt any *TWO* questions.

1. Design a database for an airline. The database must keep the track of the customers and their reservations, flights, and their status, seat assignments on the individual flights, and the schedule and routing of the future flights. Your design should include a complete ER diagram for an airline system with necessary assumptions.
2. State what kind of problems will arise if the database system is not normalized and explain how it can be solved with appropriate examples.
3. Analyze the 3-tier architecture of database management system with neat and clear diagram.

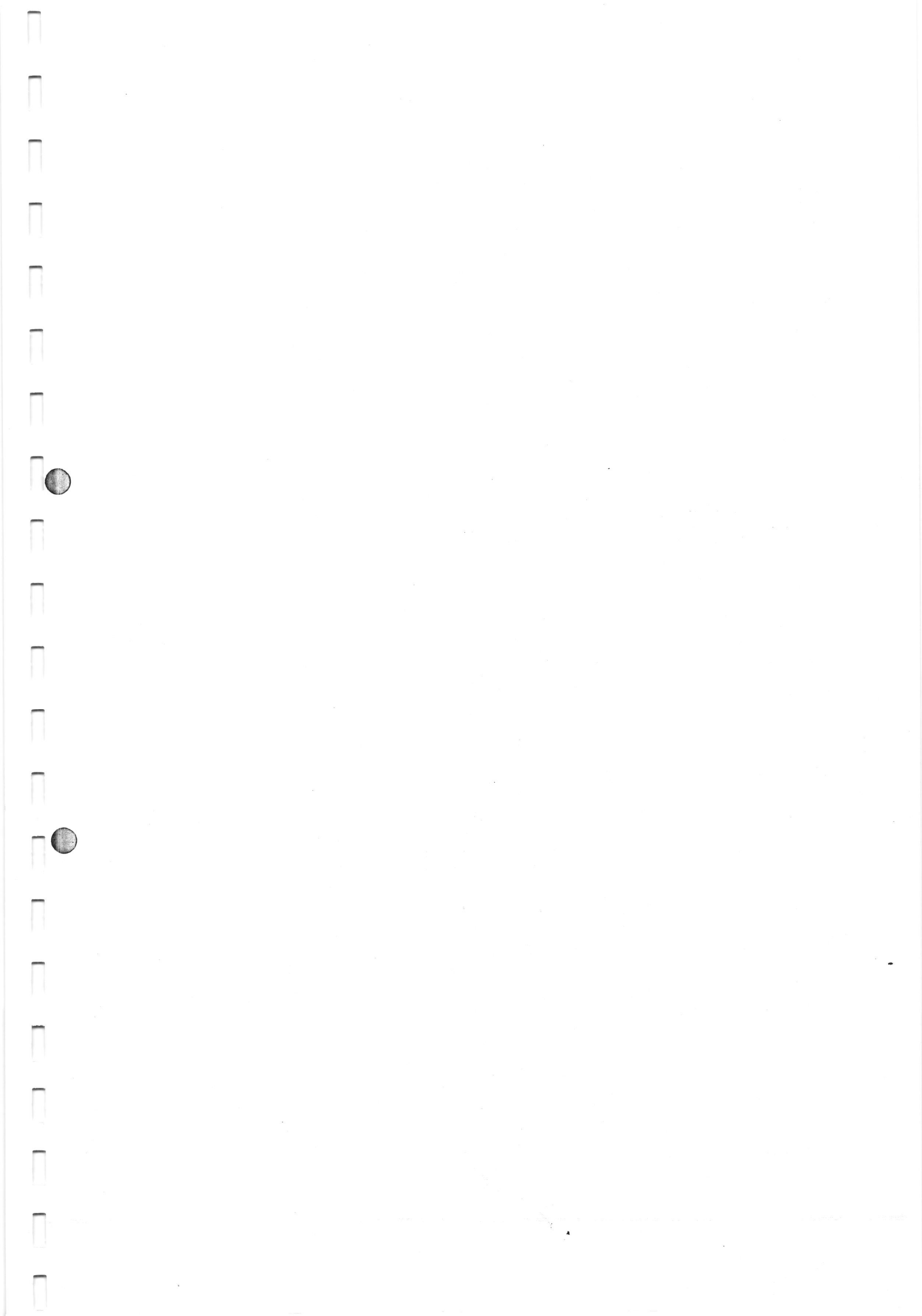
SECTION "C"
[6 Q.×4=24 marks]

Attempt any *SIX* questions.

4. Explain the four significant differences between a file processing system and a DBMS.
5. Describe the three different view levels of data in the database system.
6. What do you mean by database constraints? Discuss about the foreign key and its implementation.
7. Explain the different states of database transaction system.
8. What are the benefits of executing concurrent transactions in database management system?
9. Discuss the basic types of indexing mechanism in database management system.
10. Based upon the database schema described below, express the queries in different forms as indicated.

Branch(branch_name,branch_city,assets)
Loan(loan_number,branch_name,amount)
Borrower(cust_name,loan_number)

- a. Find the names of all branches that have assets greater than at least greater than one branch located in Banepa using SQL codes
- b. Find the names, loan numbers and loan amount for all customers who have a loan at the bank using relational algebra.



10. A _____ consists of a sequence of query and/or update statements.
 Transaction Commit Rollback Save points
11. The logical operation (FALSE and NULL) will result in _____ state.
 FALSE NULL Unknown TRUE
12. Which is NOT one of the most common types of SQL CHECK constraints?
 System date
 Range checks
 Lists of values
 Comparing one column value to another within the same table
13. In a SELECT statement that includes a WHERE clause, where is the GROUP BY clause placed in the SELECT statement?
 Before the WHERE clause Before the FROM clause
 After the ORDER BY clause After the WHERE clause
14. A major purpose of a database system is to provide users with a/an _____ view of the data.
 abstract physical logical overall
15. The function that an entity plays in a relationship is called that entity's _____.
 Role Cardinalities Attributes Participation
16. A failed transaction can transit to the abort state will accept the following operation except _____.
 Restart Kill
 Rollback partially committed
17. We say that I and J conflict iff
 They are operation by different transactions on the same data item and one of them instruction is write operation.
 They are operation by same transactions on the same data item and one of them instruction is write operation.
 They are operation by different transactions on the different data item and one of them instruction is write operation.
 They are operation by same transactions on the same data item and one of them instruction is read operation.
18. The database environment has all of the following components except:
 users. separate files.
 database. database administrator.
19. Each entity is represented as a(n):
 Tuple Table Attribute File
20. The first step in database development is which of the following?
 Enterprise data modeling Logical database design
 Physical database design and definition Database Implementation