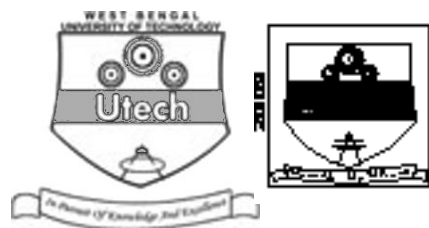


DATABASE MANAGEMENT SYSTEM (SEMESTER - 4)

CS/BCA/SEM-4/BCA-401/09



1.
Signature of Invigilator

2.
Signature of the Officer-in-Charge

Reg. No.

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Roll No. of the Candidate

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CS/BCA/SEM-4/BCA-401/09
ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009
DATABASE MANAGEMENT SYSTEM (SEMESTER - 4)

Time : 3 Hours]

[Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

- 1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
- 2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
b) For **Groups – B & C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
- 3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
- 4. Read the instructions given inside carefully before answering.
- 5. You should not forget to write the corresponding question numbers while answering.
- 6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
- 7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
- 8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
- 9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

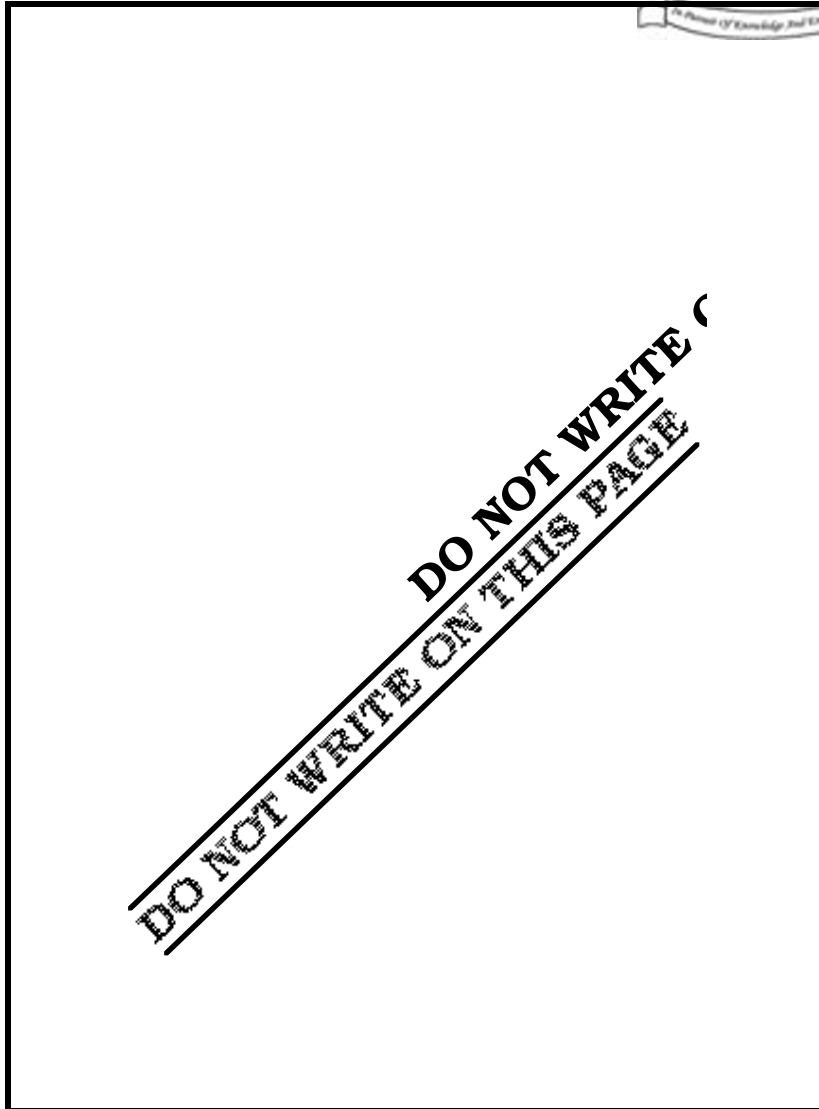
FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B				Group – C			Total Marks	Examiner's Signature	
<i>Question Number</i>																				
<i>Marks Obtained</i>																				

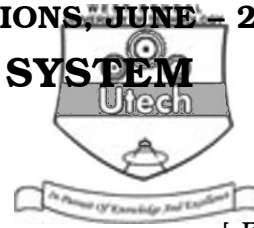
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Head-Examiner/Co-Ordinator/Scrutineer

4430 (04/06)





ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE - 2009
DATABASE MANAGEMENT SYSTEM
SEMESTER - 4



Time : 3 Hours]

[Full Marks : 70

GROUP - A

(Multiple Choice Type Questions)

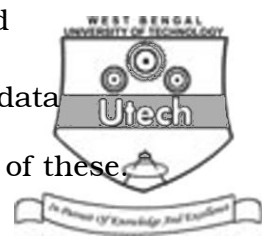
1. Choose the correct alternatives for the following : 10 × 1 = 10
- i) Overall logical structure of a database can be expressed graphically by
 - a) ER diagram
 - b) records
 - c) relations
 - d) hierarchy.

 - ii) A normal form in which every determinant is a key is
 - a) 2 NF
 - b) 3 NF
 - c) BCNF
 - d) 4 NF.

 - iii) Which of the following levels of abstraction involves the views of data ?
 - a) External level
 - b) Conceptual level
 - c) Physical level
 - d) none of these.

 - iv) One of the cause of the failure of file system is
 - a) Data availability
 - b) Fixed records
 - c) Sequential records
 - d) Lack of security.

 - v) The ability to modify the internal schema without causing any change to the external schema is
 - a) Physical data independence
 - b) Logical data independence
 - c) External data independence
 - d) none of these.



- vi) The information about data in a database is called
- a) Meta data
 - b) Tera data
 - c) Hyper data
 - d) none of these.
- vii) Which of the following features is supported in the relational database model ?
- a) Complex data types
 - b) Multi-valued attributes
 - c) Associations with multiplicities
 - d) Generalization relationships.
- viii) Four DML commands are
- a) CREATE, UPDATE, DELETE, SELECT
 - b) INSERT, UPDATE, DROP, SELECT
 - c) CREATE, ALTER, DELETE, SELECT
 - d) INSERT, MODIFY, DELETE, SELECT
 - e) INSERT, UPDATE, DELETE, SELECT.
- ix) Given the relation schema Bank (Bank ID, Account Numb, Balance, Customer) with FDs :
- { BankID, AccountNumb → Balance ; BankID, AccountNumb → Customer ; Customer → BankID }.
- What is the highest normal form for the relation schema Bank ?
- a) First
 - b) Second
 - c) Third
 - d) Boyce Code.
- x) A relation is considered to be in second normal form if it is in first normal form and it has no dependencies.
- a) referential
 - b) functional
 - c) partial key
 - d) transitive.



5

GROUP – B**(Short Answer Type Questions)**Answer any *three* of the following questions.

3 × 5 = 15

2. What is E-R diagram ? Discuss about relationship cardinality. 2 + 3
3. State the properties of Hierarchical Model. 5
4. a) What is FD ? 1
- b) What is the highest NF of each of the following relations ? 4
- i) R1 (J, K, L) with FDs are $J \rightarrow K, J \rightarrow L, K \rightarrow L$
- ii) R2 (J, K, L, M) with FDs are $J \rightarrow KL, LM \rightarrow K$
5. “All primary keys are the super key but the converse is not true.” Clarify.
Define foreign key and composite attributes with example. 5
6. Explain ACID properties of transactions. 5

GROUP – C**(Long Answer Type Questions)**Answer any *three* of the following questions.

3 × 15 = 45

7. a) What is multiple relationship ?
- b) What is attribute inheritance ?
- c) With an example describe Specialization & Generalization.
- d) Consider E-R diagram for the database of a departmental store. There are various departments in the store. One department sells many items. Some items may be sold by more than one department. A department has many employees. An employee can belong to at most one department. A manager is an employee who may look after more than one department but a department may be looked after by only one manager. A unique member called internal_hern_no is assigned to every item by the store. A supplier may supply more than one item. Every item is supplied by only one supplier at a time. Make E-R diagram for the database mentioned indicating primary key and show one entity set as a weak entity set if possible. 2 + 2 + 4 + 7



8. Considering the following tables serve the SQL queries, Relational Algebra and Relational calculus.



5 × 3

Run

Jersy_No	Player_Name	Against	Run
11	Tendulkar	Sri Lanka	89
23	Mendis	India	58
11	Tendulkar	Pakistan	80
15	Akram	India	58
15	Akram	Sri Lanka	38
23	Mendis	Pakistan	38

Jersy_No	Player_Name	Team
11	Tendulkar	India
23	Mendis	Sri Lanka
15	Akram	Pakistan

- a) Find out the names of the players from Team table whose 2nd letter of the name is E.
 - b) Find out the total runs scored in the tournament by Tendulkar.
 - c) Find out the Jersy_No, Player_Name, Team of every player in ascending order.
 - d) Who scored the highest run against India ? Display Jersy_No, Player_Name and Run.
 - e) Who scored the highest run against India and Sri Lanka ? Display Jersy_No, Player_Name and Run.
9. a) Explain Codd's rules of DBMS.
- b) What is Relational Algebra ? Explain Select, Projection, Set Union, Set Difference, Set Intersection with example. 6 + 3 + 6
10. a) With an example describe aggregation. What are the types of Database Language ? Explain them. What is data dictionary ?
- b) Explain data types of a DBMS. 3 + 4 + 3 + 5
11. a) Write down the comparison of three models in DBMS.
- b) What is schema of DBMS ? What are the types of schema ? Explain them. What is sub-schema ? 7 + 2 + 4 + 2

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END