# ADVANCE DATABASE MANAGEMENT ( SEMESTER - 6 )

**CS/BCA/SEM-6/BCAE-602C/09**

1. .....
*Signature of Invigilator*

2. .....
*Signature of the Officer-in-Charge*

***Reg. No.*** | | | | | | | | | | | | | | | |

***Roll No. of the Candidate*** | | | | | | | | | | | | | | | |

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**CS/BCA/SEM-6/BCAE-602C/09**

**ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009**

# ADVANCE DATABASE MANAGEMENT ( SEMESTER - 6 )

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**

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Marks Obtained

| | Group – A | | | | | | | | | | Group – B | | | Group – C | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Question Number*** | | | | | | | | | | | | | | | | | ***Total Marks*** | ***Examiner's Signature*** |
| ***Marks Obtained*** | | | | | | | | | | | | | | | | | | |

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**Head-Examiner/Co-Ordinator/Scrutineer**

**6695 (05/06)**

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## SEMESTER - 6

Time : 3 Hours ] [ Full Marks : 70

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### GROUP – A

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) PRODUCT

Product ID

Product Description

Manufacturer ID

MANUFACTURER

Manufacturer ID

Manufacturer Name

Referring to the above table, what type of relationship exists between the Product table and the Manufacturer table ?

a) Product — Many

Manufacturer — Many

b) Product — One or Many

Manufacturer — One or Many

c) Product — Many

Manufacturer — One

d) Product — One

Manufacturer — One

e) Product — One

Manufacturer — Many.

ii) You are writing a database application to run on your DBMS. You do not want your users to be able to view the underlying table structures. At the same time you want to allow certain update operations :

Referring to the above scenario, what structure will you deploy ?

a) Cursor table b) Table filter

c) Dynamic procedure d) View

e) Summary table.

iii) You are defining the operational process of your RDBMS :

Referring to the scenario above, which one of the following is a valid ongoing "operational process" ?

a) OS requirement b) User analysis

c) Performance monitoring d) Data dictionary specification

e) System requirement.

iv) You have been asked to construct a query in the company's RDBMS. You have deployed a Right Outer Join Operation :

Referring to the scenario above, what will happen to the final results when there is NO match between the tables ?

a) The right table will return ALL rows.

b) The right table will return NULL.

c) Both tables will return NULL.

d) The left table will eturn ALL rows.

e) The left table will return NULL.

v) Which phase of the data modelling process contains security review ?

a) Structure b) Design issue

c) Data source d) Storage issue

e) Operational process.

vi) Which one of the following is NOT a characteristic of metadata ?

a) Data about data b) Describes a data dictionary

c) Self-describing d) Includes user data



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e) Supports its own structure.

vii) Which one of the following capabilities do you expect to see in a majority of RDBMS extensions to ANSI SQL-92 ?

a) Encryption key management

b) Graphical User Interface Widgets

c) Thread creation, execution, & coordination

d) Network socket creation / operation

e) If / Then, for, do / while statements.

viii) What can a mandatory one to one relationship indicate ?

a) More entities are needed

b) The model should be denormalized

c) The tables are not properly indexed

d) The model cannot be implemented physically

e) More attributes are needed.

ix) For performance, you denormalize your database design and create some redundant columns :

Referring to the scenario above, what RDBMS construct can you use to automatically prevent the repeated columns from getting out of sync ?

a) Cursors b) Constraints

c) Views d) Stored procedures

e) Trigger.

x) You are running a query against a relational database :

Referring to the scenario above, what clause or command do you use in the query to help avoid a costly tablescan ?

a) GROUP BY clause b) INDEX command

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c) HAVING clause d) FROM clause

e) WHERE clause.

## GROUP – B
### ( Short Answer Type Questions )

Answer any *three* of the following. 3 × 5 = 15

2. What is Fragmentation ? How many types are they ? Briefly explain each of them with suitable example. 5
3. Explain the basic principle of time stamp protocol. 5
4. What is dead lock ? State and explain the causes of dead lock in a database system. 1 + 4
5. Discuss the relative advantages and disadvantages of a distributed database. 5
6. Explain cascading rollback with an example. 5

## GROUP – C
### ( Long Answer Type Questions )

Answer any *three* questions. 3 × 15 = 45

7. a) What is Transaction ? What is interleaving in Transaction ? 4
   b) Describe the properties of Transaction. 4
   c) Explain different Transaction states with diagram. 4
   d) Explain 5th normal form with example. 3
8. a) What is embedded SQL ? Describe an application that needs embedded language. How is static embedded SQL different from dynamic embedded SQL ? 2 + 2 + 3
   b) Differentiate between 3NF and BCNF. 3
   c) What is View Serializability ? 2
   d) Explain non-recoverable schedule with an example. 3
9. a) Consider the following *Staff Property Inspection* relation :

| Property No. | pAddress | iDate | iTime | Comments | Staff No. | sName | car Reg |
|---|---|---|---|---|---|---|---|
| PG4 | 6, Lawrence St. Glasgow | 18/10/00 | 10.00 | Good | SG37 | Smith | M231JGR |
| | | 22/04/01 | 09.00 | Excellent | SG14 | Leon | M533HDR |
| | | 01/10/01 | 12.00 | Outstanding | SG14 | Leon | N721HFR |
| PG16 | 5, Novar | 22/04/01 | 13.00 | Excellent | SG14 | Leon | M533HDR |



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|---|---|---|---|---|---|---|---|
| | Dr, Glasgow | 24/10/01 | 14.00 | Outstanding | SG37 | Smith | N721HFR |

Draw FD diagram and normalize the above relation up to BCNF. 10

b) What is the importance of a trigger ? 2

c) What is the role of commit ? Explain with examples. 3

10. a) Distinguish between Live Lock and Dead Lock. 3

b) Consider the following relational scheme :

Employee ( ename, street, location )

Works ( ename, cname, sal )

Company ( cname, location )

Managers ( ename, mgr_name )

Express the following in SQL : 6 × 2 = 12

i) Find the name and location of residence of all employees who work for 'CTS'.

ii) Find the name, street and location of all employees who work for 'TCS' and earn more than Rs. 20,000.

iii) Find the name of all employees who live in the same city as the company for which they work.

iv) Find the names of all employees who live in the same location and in the street as do their managers.

v) Assume the companies may be located in several cities. Find all companies name located in every location in which 'IBM' is located.

vi) Find the name of all employees who earn more than every employee of 'TCS' company.

11. a) Answer the following questions very briefly : 5 × 2 = 10

i) What is critical section ?

ii) What is multi-database system ?

iii) What is schedule ?

iv) What is the use of normalisation in database ?

v) What are semaphores ?

b) What is two-phase locking ? Discuss it. 5



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END

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