Roll No. ....

BCA–501(N)

B. C. A. (Fifth Semester)
EXAMINATION, Dec., 2014

(New Course)

Paper First

INTRODUCTION TO DBMS

Time : Three Hours] [*Maximum Marks : 75*

Note : Section A is compulsory. Attempt any *seven* questions from Section B and *one* question from Section C.

Section—A

1. (i) Briefly discuss the history of database system. Explain the advantages of DBMS over file management system. 6

   (ii) What is an entity ? What is a relationship in RDBMS ? 3

2. (i) Define Normalization. Explain 1NF, 2NF and 3NF using appropriate examples. 6

   (ii) What is Authorization and Authentication in Oracle ? How OBA manages the overall database security ? 3

Section—B 6 each

3. Explain the overall system structure of DBMS.

4. What is data model ? List the types of data model used.

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14. Construct an ER diagram for a Bank database having customer, loan, account, employee and branch an entity types. A customer has an account in a particular branch of the bank. The customer can also borrow loan from the bank. The bank has number of employees working in different branches of the bank. Add appropriate attributes for each entity type. Represent the key attributes, weak entity types (if any), cardinality ratios, and role names of each entity type. Make appropriate assumptions to complete the specification.

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5. Explain as to how records of a file are placed and organised into a file in secondary storage.

6. Discuss how multilevel indexes are constructed using B trees and B++ trees.

7. Define ACID property.

8. Explain as to how hashing is used for file organization. Write about static hashing and dynamic hashing.

9. Discuss the following :

   (i)   Lock based protocol

   (ii) Time stamp based protocol

10. Explain JOIN operation with example. Also explain its variations.

11. Give purpose, syntax and examples of the following commands along with their various clauses :

   (i)   ALTER

   (ii) DROP

   (iii) SELECT

   (iv) INSERT

   (v)   UPDATE

   (vi) DELETE

12. What is cartesian product. How is it different from join operation ?

Section—C

15 each

13. Define the following :

   (i)   Primary key

   (ii) Dynamic SQL

   (iii) Foreign key

   (iv) Attribute

   (v)   Specialization