

Roll No .....

**MCTA - 104**  
**M.E./M. Tech., I Semester**

Examination, June 2016

**Advanced DBMS**

*Time : Three Hours*

*Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
 ii) All questions carry equal marks.

1. a) Describe any seven characteristics of an optimal data model. 7  
 b) Explain the three database levels with the help of a diagram. 7
2. a) What is Relational Algebra? Explain following operations with the help of records in table (s) as example. 7  
     i) Cartesian product  
     ii) Difference  
     iii) Union  
 b) Explain the benefits of normalization and denormalisation of database. 7
3. a) Describe the concept of transparency in distributed database. Explain any three types of transparency possible in distributed database. 7  
 b) What is distributed database? Discuss any three benefits associated with distributed database. 7

4. a) Describe the components of distributed client/server database architecture. Draw a neat diagram to show this architecture. 7  
 b) Explain the probable disadvantages associated with distributed database. 7
5. a) Explain the advantages of object oriented database model over other database model. 7  
 b) Compare and contrast between object oriented and object relational database models. 7
6. a) Explain the phenomena of accessing database on web through any script step-by-step. 7  
 b) Write a brief note on XML database. 7
7. a) i) What is R-Tree? Write its characteristics. 3  
     ii) Explain the time complexity of search in R-Tree. 4  
 b) i) Describe the structure of K-D tree. Write its application. 3  
     ii) Write steps to be followed for nearest neighbour look-up in K-D tree. 4
8. a) What is multimedia database? Describe at least four requirement of multimedia database. 7  
 b) Explain ACID properties which a database management system should maintain to ensure data integrity. 7

\*\*\*\*\*