MCA (2012 & Onwards)   (Sem.–3)
DATABASE ADMINISTRATION
Subject Code : MCA-301
Paper ID : [B1157]

Time : 3 Hrs.   Max. Marks : 100

INSTRUCTION TO CANDIDATES :
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TWENTY marks each and students has to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.**

SECTION-A

1) a) What is a communication protocol? Name some commonly used protocols. Which protocol is used as the Internet communication standard? Explain.

    b) Discuss technology components of client/server systems with its applications.   (10, 10)

2) State the roles and responsibilities of Data Base Administrator (DBA) to perform basic administrative tasks. How do you create and manage database objects such as tables, views and indexes?   (20)

SECTION-B

3) a) What are the several utilities/commands/programs that are available to help DBA to maintain and control the Database Server? Discuss.

    b) Explain the principles behind database replication. Provide step-by-step instructions for setting up and managing replication using MS-SQL/MySQL/Oracle.   (10, 10)

4) How do you implement

    (a) database compression and

    (b) migration, consolidation and upgrade strategy, as a DBA?   (20)

SECTION-C

5) a) What is database security? How is it achieved in a database server? How does database security differ from database availability? Explain with the help of an example.

    b) What is database recovery? What is the need of database recovery? How do you implement database recovery in a database server?   (10, 10)

6) a) What are the main goals of the RAID technology? How does it achieve them?

    b) Determine why computer backup is important and how it is accomplished. How do you define and test a backup, restore and recovery strategy? (10, 10)

SECTION-D

7) What is the need of performance tuning of a database server? What are some rules of thumb when analyzing schemas and queries for performance issues? How does query design affect database performance? How can you use IN / NOT IN, and ANY / ALL in conjunction with sub queries? (20)

8) Write short notes on :

    a) Clustering based disaster-proof databases

    b) Database partitioning (10, 10)

SECTION-E

9) Write briefly :

    a) What are the steps involved in database startup?

    b) Define connection-oriented communication protocols.

    c) Who are the users of database?

    d) Compare Oracle with MySql database.

    e) How do you run multiple server instances on one machine?

    f) Name various tools that are available to assist with diagnosing and troubleshooting database issues.

    g) How does schema design affect database performance?

    h) What is a subquery?

    i) What is a view? Why might you create one? How is it defined?

    j) What is an index? How do you declare an index with SQL?