Q5. Attempt any ***two*** questions from the following : 10x2=20

(a) Describe 2-phase commit protocol with the state transition diagram for it. What are the demerits of this protocol?

(b) Generate an algorithm for synchronous check pointing in a distributed database system.

(c) Discuss the objectives of distributed query processing. Explain the various phases in distributed query processing in detail.

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214433

NMCA015/MCAE-16

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 214433

Roll No.

MCA
(SEM. IV) THEORY EXAM. 2014-15
DISTRIBUTED SYSTEM

Time : 3 Hours] [Total Marks : 100

Note : Attempt the questions as indicated.

Q1. Attempt any ***two*** questions from the following : 10x2=20

(a) Compare the characteristics of a central database and distributed database over a network. List and explain in brief five problems in distributed database system.

(b) What do you mean by multidatabase system? Explain in brief and also compare the two-tier and three-tier client architecture.

(c) Explain how the two-phase protocol for nested transactions ensure that if the top level transaction commits, all the descendants are committed or aborted.

Q2. Attempt any ***two*** questions from the following : 10x2=20

(a) What are the distributed database? What are the advantages of data distribution and data replication?

(b) Write and explain the characteristics of query processors.

(c) What do you mean by fragmentation? Explain horizontal and vertical fragmentation with example.

Q3. Attempt any ***two*** questions from the following : 10x2=20

(a) Define recoverable schedule. Why is recoverability of schedules desirable? Explain it with suitable example.

(b) Write short notes on distributed serializability and objectives of data distribution.

(c) Discuss the multiversion timestamp ordering algorithm. What are the advantages and disadvantages of this algorithm?

Q4. Attempt any ***two*** questions from the following : 10x2=20

(a) Discuss how a unique global timestamp is generated in a distributed system. Discuss the lost update and dirty read anomaly.

(b) Under which situation will it be beneficial to have replication or fragmentation of data? Describe the correctness rules that must be considered during data fragmentation.

(c) Differentiate between short duration and long duration transaction with suitable example. Explain homogeneous and heterogeneous distributed database system.