Total No. of Questions : 6]

SEAT No. :

P4185

[Total No. of Pages : 2

[5255] - 683

M.E. (Computer Engineering)

HIGH PERFORMANCE DATABASES

(2013 Credit Pattern) (510102) (Semester - I)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***All six questions are compulsory.***
2) ***Neat diagrams must be drawn whenever necessary.***
3) ***Assume suitable data if necessary.***

Q1) a) Why is database tuning important? How do we tune indexes and the conceptual schema? **[4]**

b) Answer the following questions (any one) : **[3]**

i) Why do we have standardized database benchmarks, and what common Metrics are used to evaluate database system? Describe a few popular Database benchmarks.

ii) Why is automatic index tuning is a hard problem? Give an example.

Q2) a) Explain allocation of fragments in Distributed Database Management. **[4]**

b) Explain 2-Phase Commit protocol in Distributed Databases. **[5]**

Q3) a) Explain key properties of Long-Duration Transaction. **[4]**

b) Consider a main-memory databases system recovering from a system crash. Explain the relative merits of : **[5]**

i) Loading the entire database back into main memory before resuming transaction processing.

ii) Lading data as it is requested by transaction.

Q4) a) Consider bibliography Database System for different database entities such as book, book year, author, editor, title, publisher, price etc. Design XML DTD, XML Schemas with constraints for bibliography Database System. **[5]**

P.T.O.

b) Write a short note on (any one) : **[4]**

i) SOAP.

ii) XSLT.

Q5) a) Explain Semi-structured databases. What are the features of COUCHDB. **[4]**

b) Suppose you have special databases that support region queries but not nearest queries. Describe an algorithm to find the nearest neighbour by making use of multiple region queries. **[5]**

Q6) a) Explain Map Reduce Types and Formats with suitable examples. **[4]**

b) Solve any one : **[3]**

i) Explain the use of Task Tracker in Hadoop cluster.

ii) Write short note on Multimedia Database.