Total No. of Questions : 6]

SEAT No. :

P4208

[Total No. of Pages :3

[4760]-1190

M.E. (Computer Engineering) (Semester - I)

HIGH PERFORMANCE DATABASES

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) a) Why is automatic index tuning a hard problem? Give an example. **[4]**

b) If you were about to create an index on a relation, what considerations would guide your Choice? Discuss: **[5]**

i) Clustered versus unclustered indexes.

ii) Hash versus tree indexes.

Q2) a) Describe different transformations of global queries into fragment queries in distributed database. **[4]**

b) Explain any two concurrency protocols in distributed databases to ensure consistency. **[4]**

Q3) a) Explain how a TP monitor manages memory and processor resources more effective than a typical operating system. **[4]**

b) Write a short note on (Any One) **[4]**

i) Long duration transaction

ii) Main memory databases

Q4) Solve Any Two.

a) Consider following DTD **[4]**

<?xml version="1.0" encoding="UTF-8"?>

<!ELEMENT report (section*)>

P.T.O.

<!ELEMENT section (section.title, section.content)>

<!ELEMENT section.title (#PCDATA)>

<!ELEMENT section.content (#PCDATA | anesthesia | prep | incision | action | observation)*>

<!ELEMENT anesthesia (#PCDATA)>

<!ELEMENT prep (#PCDATA | action)*>

<!ELEMENT incision (#PCDATA | geography | instrument)*>

<!ELEMENT action (#PCDATA | instrument)*>

<!ELEMENT observation (#PCDATA)>

<!ELEMENT geography (#PCDATA)>

<!ELEMENT instrument (#PCDATA)>

Create XML document and solve the following queries in XQuery on XML

i) In the Procedure section of Report 1, what Instruments were used in the second Incision?

ii) In Report 1, what Instruments were used in the first two Actions after the second Incision?

b) Consider following DTD for bid **[4]**

<?xml version="1.0" encoding="UTF-8"?>

<!ELEMENT bids (bid_tuple*)>

<!ELEMENT bid _tuple (userid, itemno, bid, bid_date)>

<!ELEMENT userid (#PCDATA)>

<!ELEMENT itemno (#PCDATA)>

<!ELEMENT bid (#PCDATA)>

<!ELEMENT bid_date (#PCDATA)>

Create XML document and solve the following queries in XQuery on the bibliography fragment

i) List the item number and description of the item(s) that received the largest number of

bids, and the number of bids it (or they) received.

ii) List item numbers and average bids for items that have received three or more bids, in

descending order by average bid

c) Explain SOAP architecture in web databases **[4]**

Q5) a) Explain Time series analysis in Temporal Databases. **[4]**

b) Explain Mobile databases with suitable example. **[4]**

Q6) a) Explain Database Connectivity Standards and Object Database Standards. **[5]**

b) Solve any One **[4]**

i) Explain CouchDB building blocks for large systems, self data contain and Replication

ii) Explain Performance tuning using Materialized View and Schemas

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