Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)
Re- Examination
Jan 2019

Max. Marks: 100 Duration: 3 Hrs
Class: T.E. Semester: V
Course Code: TEITC504 Branch: Information Technology
Name of the Course: Advanced Database Management Systems

**Synoptic**

Q1 a. What are the advantages and disadvantages of ODBMS?

Advantages 3 marks
Disadvantages 2 marks

b. What is the difference between triggers and assertions ? With the help of example explain triggers and assertions.

Difference 1 mark
Explanations of Triggers with example 2 marks
Explanations of assertions with example 2 marks

c. What are the roles of the Analysis, Redo, and Undo phases in ARIES ?

Analysis 2 marks
Redo 2 marks
Undo 1 mark

d. Write the five difference between OLAP and OLTP.

5 differences 5 marks

Q2a With the help of suitable example design a star schema and snowflake schema and show the primary keys, foreign keys and measures.

Example 2 marks
Star schema 4 marks
Snowflake schema 4 marks

OR
Draw and explain the architecture of data warehousing with datastaging area.

Diagram 2 marks
Explanation 8 marks

Q2b. Explain the embedded SQL and SQLJ with the help of example.

Embedded SQL with example 5 marks
SQLJ with example 5 marks

Q3a. What is ETL process? How ETL process is used in data warehousing describe each phasein brief.

ETL 1 mark
Three phases 9 marks

Q3 b. Explain two phase locking protocol and serializability with the help of example.

2 phase locking protocol 3 marks
Example 2 marks
Serializability 3 marks
Example 2 marks

OR

Why to use Write Ahead Logging and check pointing in transaction processing explain with the help of example.

WAL with example 5 marks
Check pointing with example 5 marks

Q4a. Assume that tree is initially empty. The number of pointers that are fit in one node are 4. Draw the B+ tree for the following and insertthe value in node and show all the steps.
2,3,5,7,11,17,19,23,29,31,9,10,8

First four values 1 marks
Then each value 1 marks

Q4b Explain the Mandatory Access Control and Role Based Access Control for Multilevel Security.

MAC 5 marks
RBAC 5 marks

OR

Explain Statistical Database with example.
Statistical Database 6 marks
Example 4 marks.

Q5.a Compare MOLAP, ROLAP, and HOLAP.

6 differences 10 marks

Q5.b Find out the data transfer cost of distributed query processing forfollowing query. For each employee retrieve the employee nameand name of the department

for which employee works". Suppose there are three sites in distributed systems.
Site1 containsemployee relation Employee(fname,minit,lname,ssn,bdate,address
salary,sssn, dno)
There are 20000 records , each record is 200 byteslong.
Ssn field is 9 bytes,fnamefield is 15 bytes, dnofield is 4bytes, lname is 15 bytes. Site
2 contains Department relation
Deparment(dname,dno,mgrssn,mgrstartdate)
There are 200 records,each record is 45 bytes long,
dno is 4 bytes, dname 10 bytes, mgrssn9 bytes.
Query is submitted to result site 3. Consider different strategies for executing this
query and find which strategy is best using natural join and semi join operation.
Ans: For natural join 5 marks
For Semijoin 5 marks

OR
Consider the following relation
Proj(pnumber,pname,budget,location)
For the above relation assume any 10 tuples and fragment the relation horizontally
and vertically and test the correctness rules forboth the fragmentation.

Horizontal fragmentation 3 marks
Vertical fragmentation 3 marks
Correctness rules for horizontal fragmentation 2 marks
Correctness rules for vertical fragmentation 2 marks