

University of Mumbai

Examinations Summer 2022

Program: 1T01235 / T.E. Information Technology Engineering

Curriculum Scheme: (Choice Base Credit Grading System) (R- 19) (C Scheme)

Examination: TE Semester: V

Course Code: ITDO5012

Course Name: Advanced Data Management Technologies

Time: 2 hour 30 minutes

Max. Marks: 80

MCQ

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The representation of the queries in the form of data structure graph is called as
Option A:	parser tree
Option B:	Scanner tree
Option C:	Query tree
Option D:	Query graph
2.	Query processing has following sequence of steps a)Parsing b)Transformation c)Optimization d)Evaluation
Option A:	a-b-c-d
Option B:	b-c-d-a
Option C:	a-c-b-d
Option D:	a-b-d-c
3.	An additional security policy, which classifies data and users based on security classes is called as
Option A:	Role based access control
Option B:	Discretionary access control
Option C:	Mandatory access control
Option D:	Multilevel Access Control
4.	The operation of moving from finer-granularity data to a coarser granularity (by means of aggregation) is called as
Option A:	Rollup
Option B:	Drill down
Option C:	Dicing
Option D:	Pivoting
5.	Which of the following is not a component of a data warehouse?
Option A:	Metadata
Option B:	Current detail data
Option C:	Lightly summarized data
Option D:	Component Key
6.	By 'spatial data' we mean data that has
Option A:	Complex value
Option B:	Positional Values
Option C:	Graphic values
Option D:	Decimal values
7.	A table is divided into several horizontal subsets having a subset of the attributes, this is done in
Option A:	Horizontal Fragmentation
Option B:	Mixed Fragmentation
Option C:	Vertical Fragmentation
Option D:	Data Fragmentation

8.	Load and index is
Option A:	A process to load the data in the data warehouse and to create the necessary indexes.
Option B:	A process to reject data from the data warehouse and to create the necessary indexes.
Option C:	A process to upgrade the quality of data after it is moved into a data warehouse.
Option D:	A process to upgrade the quality of data before it is moved into a data warehouse
9.	In ____ mode of data loading if the primary key of incoming record matches with the key of existing record then existing record is updated.
Option A:	Constructive Merge
Option B:	Destructive Merge
Option C:	Load
Option D:	Append
10.	When is it best to use a NoSQL database?
Option A:	When providing confidentiality, integrity and availability is crucial
Option B:	When the data is predictable
Option C:	When the retrieval of large quantities of data is needed
Option D:	When the retrieval speed of data is not critical

subjective/descriptive questions

Q2	Solve any Two Questions out of Three	10 marks each
A	Explain in detail steps of query processing.	
B	Draw and Explain Enterprise and federated data warehouse architectures.	
C	Explain in detail NOSQL data architectural patterns.	

Q3	Solve any Two Questions out of Three	10 marks each
A	Explain in detail different data access control mechanisms.	
B	Let relations r1(A, B, C) and r2(C, D, E) have the following properties: r1 has 20,000 tuples, r2 has 45,000 tuples, 25 tuples of r1 fit in one block and 30 tuples of r2 fit in one block . Estimate the number of block transfers and seeks required, using each of the following join strategies : a. Nested-loop join. b. Block nested-loop join. Assume the suitable data	
C	Consider a data warehouse storing sales details of various goods sold, and the time of the sales. Using this example describe the following OLAP operations 1)slice 2)dice 3)rollup 4)drill down 5)pivot	

Q4.	Solve any Two Questions out of Three	10 marks each
A	Consider the following database that has to be distributed: PROJ(pno, pname, budget) PAY(title, salary) EMP(eno, ename, salary) ASG(pno, responsibility, duration) a) show one example of horizontal fragmentation (also show reconstruction) b) show one example of derived horizontal fragmentation	
B	Differentiate between 1)ACID and BASE 2)Traditional data and Big data	
C	Explain in detail Data loading methods to data warehouse with examples.	