

University of Mumbai

Examinations Commencing from 17th May 2022

Program: Artificial Intelligence and Data Science

Curriculum Scheme: Rev 2019


Examination: SE Semester: IV

Course Code:

Course Name: Database Management System

Time: 2 and 1/2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks (20 marks)
1.	Hiding the details of data of how it is stored and maintained is termed as
Option A:	Data Hiding
Option B:	Data Abstraction
Option C:	Data Isolation
Option D:	Data Integrity
2.	Which user operates at logical level of Data Abstraction?
Option A:	DBA
Option B:	Programmer
Option C:	Naive User
Option D:	System Analyst
3.	Identify the correct mapping of below ER fragment
	
Option A:	EMPLOYEE(EMP_ID, EMP_Fname, EMP_Lname, salary)
Option B:	EMPLOYEE(EMP_ID, salary), EMPLOYEE(EMP_Fname, EMP_Lname)
Option C:	EMPLOYEE(EMP_ID, salary), EMPLOYEE_name(EMP_ID, EMP_Fname, EMP_Lname)
Option D:	Emp(emp_id, emp_name)
4.	Consider a situation in which attribute AGE value is calculated based on the attribute DATE-OF-BIRTH. Here attribute AGE is
Option A:	Composite Attribute
Option B:	Multivalued Attribute
Option C:	Simple Attribute
Option D:	Derived Attribute
5.	An entity set that does not have sufficient attributes to form a primary key is termed as
Option A:	Weak Entity

Option B:	Strong Entity																																																												
Option C:	Simple Entity																																																												
Option D:	Derived Entity																																																												
6.	Which of the following are TCL Commands?																																																												
Option A:	Select & Insert																																																												
Option B:	Update & Truncate																																																												
Option C:	Grant & Revoke																																																												
Option D:	Rollback & Savepoint																																																												
7	Trigger which executes only once for a transaction is called as -----																																																												
Option A:	Row Level Trigger																																																												
Option B:	Simple Trigger																																																												
Option C:	Statement Level Trigger																																																												
Option D:	Complex Trigger																																																												
8.	<p>Department Relation is changed to Department_new. What is this transformation called as?</p> <table border="1" data-bbox="384 864 984 969"> <thead> <tr> <th colspan="5">department</th> </tr> <tr> <th>dname</th> <th>dnumber</th> <th>m_ssl</th> <th>start_date</th> <th>dep_locations</th> </tr> </thead> <tbody> <tr> <td>Consultancy</td> <td>15</td> <td>333</td> <td>1988-01-09</td> <td>New York, Delaware, Wilmington</td> </tr> <tr> <td>Finance</td> <td>4</td> <td>987</td> <td>1989-01-09</td> <td>Tempe</td> </tr> <tr> <td>Head Office</td> <td>1</td> <td>888</td> <td>1990-01-09</td> <td>Florida</td> </tr> </tbody> </table> <table border="1" data-bbox="384 987 874 1131"> <thead> <tr> <th colspan="5">department_new</th> </tr> <tr> <th>dname</th> <th>dnumber</th> <th>m_ssl</th> <th>start_date</th> <th>dep_locations</th> </tr> </thead> <tbody> <tr> <td>Consultancy</td> <td>15</td> <td>333</td> <td>1988-01-09</td> <td>New York</td> </tr> <tr> <td>Consultancy</td> <td>15</td> <td>333</td> <td>1988-01-09</td> <td>Delaware</td> </tr> <tr> <td>Consultancy</td> <td>15</td> <td>333</td> <td>1988-01-09</td> <td>Wilmington</td> </tr> <tr> <td>Finance</td> <td>4</td> <td>987</td> <td>1989-01-09</td> <td>Tempe</td> </tr> <tr> <td>Head Office</td> <td>1</td> <td>888</td> <td>1990-01-09</td> <td>Florida</td> </tr> </tbody> </table>	department					dname	dnumber	m_ssl	start_date	dep_locations	Consultancy	15	333	1988-01-09	New York, Delaware, Wilmington	Finance	4	987	1989-01-09	Tempe	Head Office	1	888	1990-01-09	Florida	department_new					dname	dnumber	m_ssl	start_date	dep_locations	Consultancy	15	333	1988-01-09	New York	Consultancy	15	333	1988-01-09	Delaware	Consultancy	15	333	1988-01-09	Wilmington	Finance	4	987	1989-01-09	Tempe	Head Office	1	888	1990-01-09	Florida
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Option B:	2NF																																																												
Option C:	3NF																																																												
Option D:	4NF																																																												
9.	When a transaction completes the execution of its final statement, it enters a state. What is the name of this state?																																																												
Option A:	Partially Committed State																																																												
Option B:	Committed State																																																												
Option C:	Failed State																																																												
Option D:	Aborted State																																																												
10.	Consider the following schedule Choose correct option for the above transactions schedule																																																												

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Option A:	View serializable																		
Option B:	Conflict Serializable																		
Option C:	Both View and Conflict Serializable																		
Option D:	Conflict Serializable but not View Serializable																		

Q2	Solve any Four out of Six (5 marks each) 20 Marks
A	Explain Log Based Recovery
B	Explain different types of Integrity Constraints with example
C	Explain ACID Properties of transactions
D	Explain different types of user in database system.
E	Explain following relational algebra operations with suitable example: A. Project B. Selection C. Union D. Cartesian Product
F	Difference between: File Processing System & Database Management System

Q3.	Solve any Two Questions out of Three. (10 marks each) 20 Marks
A	Construct ER Diagram for Library Management System and convert the same into relational model.
B	Explain DBMS Architecture in detail
C	What is Normalization? Explain 1NF, 2NF, 3NF with suitable example.

Q4.	Solve any Two Questions out of Three. (10 marks each) 20 Marks
A	Explain the concepts of deadlock handling with all characteristic types.
B	Explain DML,DCL command with suitable example.
C	Explain all types of concurrency control protocol with suitable example.

