St. Philomena's College (Autonomous), Mysore
PG Department of Computer Science
Question Bank (Revised Curriculum 2018 onwards)
First year- Second Semester (2019 -21 Batch)
DATABASE MANAGEMENT SYSTEM(HC) QP Code: 56101

Unit	Sl. No	Questions	Marks
1	1.	Define Database.	2
1	2.	What is a DBMS?	2
1	3.	What is the need for database systems?	2
1	4.	What are the responsibilities of DBA?	2
1	5.	List the disadvantages of database systems?	2
1	6.	What are the 3 levels of data abstraction?	2
1	7.	Define attribute. List its types.	2
1	8.	What is meant by entity set?	2
1	9.	What is Data Independence?	2
1	10.	What is a data dictionary?	2
1	11.	Give the levels of data abstraction.	2
1	12.	What is a composite attribute? Give examples.	2
1	13.	What is a single valued attribute? Give examples.	2
1	14.	What is a multivalued attribute? Give example.	2
1	15.	Define entity and give example.	2
1	16.	What is the difference between the strong entity set and weak entity set?	2
1	17.	Define prime and non prime attributes.	2
1	18.	What is an attribute?	2
1	19.	What is specialization?	2

2	20.	List the types of data model used.	2
2	21.	What do you mean by Hierarchical model?	2
2	22.	What are the advantages of relational model?	2
2	23.	Define tuple.	2
2	24.	Define schema.	2
2	25.	Define relation and relationship set.	2
2	26.	What is meant by relational model?	2
2	27.	What are the functions of selection and projection operation?	2
2	28.	Define the following terms: DDL & DML?	2
2	29.	What is domain? Give example.	2
2	30.	Define schema instance.	2
2	31.	What is meant by foreign key?	2
2	32.	Give the distinction between candidate key and super key.	2
2	33.	What is a view? How it is related to data independence?	2
2	34.	What is the use of rename operation?	2
2	35.	What are the difference between unique key and Primary Key?	2
2	36.	What is a Relation Schema and a Relation?	2
2	37.	What is degree of a Relation?	2
2	38.	What is a primary key?	2
2	39.	What is the use of COMMIT and ROLL BACK statements?	2
2	40.	What is the purpose of group by clause in the SELECT statement?	2
2	41.	What are views?	2
2	42.	How does a view differ from a table?	2

2	43.	What is the difference between WHERE and Having Clause?	2
2	44.	What is the use of sub queries?	2
2	45.	What are SELECT and PROJECT operations?	2
2	46.	What is the difference between candidate key and super key?	2
2	47.	What is the difference between procedural and non- procedural languages?	2
2	48.	What do you mean by null constraints?	2
3	49.	Define normalization.	2
3	50.	What are the functional dependencies?	2
3	51.	What is BCNF?	2
3	52.	Difference between first normal form and second normal form.	2
3	53.	What is a primary index?	2
3	54.	What are the two types of indices?	2
3	55.	What is a hash index?	2
3	56.	What do you mean by hashing?	2
3	57.	What do you mean by redundancy? How this can be avoided?	2
3	58.	What is Fully Functional dependency?	2
3	59.	What is transitive dependency?	2
3	60.	What is file organization?	2
3	61.	What is an index?	2
3	62.	Define open hashing and closed hashing.	2
3	63.	What is hashing file organization?	2
3	64.	What is tree based indexing?	2

3	65.	What is known as clustering file organization?	2
3	66.	What is known as a search key?	2
3	67.	What are called index-sequential files?	2
4	68.	What is transaction?	2
4	69.	What are the properties of transaction?	2
4	70.	When is a transaction rolled back?	2
4	71.	What are the states of transaction?	2
4	72.	Define ACID property.	2
4	73.	Define lock.	2
4	74.	Define the phases of two phase locking protocol.	2
4	75.	What is the use of locking?	2
4	76.	What is shared lock and Exclusive lock?	2
4	77.	Give the reasons for allowing concurrency.	2
4	78.	What are the two types of serializability?	2
4	79.	Define serializable schedule. Give one example	2
4	80.	What is a strict Schedule?	2
1	1.	Explain the concept of data independence.	5
1	2.	Define Database Management System. What is the role of Database administrator?	5
1	3.	Explain following terms in detail. Entity, Relationship, Relationship Set, Attribute, Primary key.	5
1	4.	What do you mean by terms Aggregation and Generalization? Explain it with the help of example.	5

1	5.	Explain specialization and generalization concepts in ER diagram with Suitable example.	5
1	6.	Draw an ER diagram for Library database.	5
1	7.	Draw E-R diagram for University database.	5
1	8.	Draw an ER diagram for banking database.	5
1	9.	Draw an ER diagram for Supermarket database.	5
2	10.	Differentiate between primary key and candidate key with suitable example.	5
2	11.	Explain TCL commands with example.	5
3	12.	Find the candidate key for the relation R(ABCDEF) Functional dependencies: A->C, C->D, D->B, E->F.	5
3	13.	What is transitive dependency? Explain.	5
4	14.	What do you mean by isolation? Why is it important? Give an example.	5
4	15.	What do you mean by atomicity? Why is it important? Give an example.	5
4	16.	What do you mean by durability? Why is it important? Give an example.	5
4	17.	What do you mean by consistency? Why is it important? Give an example.	5
4	18.	With a neat diagram explain transaction states.	5
4	19.	Explain the reasons for allowing concurrency.	5
4	20.	Write a note on performance of locking.	5
2	1.	Discuss primary key, super key and alternate key.	7

2	2.	Compare network and hierarchical model. Explain with example.	7
2	3.	What is the need of relational model? Explain with example?	7
2	4.	Differentiate between Cartesian product and natural join operations.	7
2	5.	Explain different types of outer join with example.	7
3	6.	Explain the informal guidelines for relational schema design.	7
3	7.	State BCNF, How does it differ from 3 NF?	7
4	8.	What is meant by transaction rollback? Explain.	7
4	9.	Explain dirty read problem (Write-Read Conflict).	7
4	10.	Explain lost update problem (Write-Write Conflict).	7
4	11.	Explain unrepeatable read problem (Read-Write Conflict).	7
4	12.	Explain strict two phase locking protocol.	7
1	1.	What are the disadvantages of file-processing system?	8
2	2.	Write a short note on Relational model.	8
2	3.	Define the following terms : (a) Tuple (b) Domain (c) Field (d) Record.	8
2	4.	What are the unary operations in Relational Algebra?	8
2	5.	Explain Union and intersection operation?	8
3	6.	Why do we need normalization?	8
4	7.	Explain in detail about ACID properties.	8
4	8.	Discuss the conflict serializability and view serializability with example.	8
4	9.	What is two-phase locking and how does it guarantee serializability?	8
4	10.	Which are the modes of lock? Explain two phase locking protocol.	8

1	1.	Explain the levels of abstraction in DBMS with a neat diagram.	10
1	2.	Explain any eight applications of DBMS.	10
1	3.	What are the various types of attributes? Explain each with example?	10
1	4.	What do you mean by cardinality? What are different kinds of cardinalities?	10
1	5.	With example explain various mapping cardinalities and total participation.	10
1	6.	Explain the two types of participation constraint.	10
1	7.	What are the basic units of ER diagrams? Explain.	10
1	8.	Write a short note on Entity-Relationship model.	10
1	9.	What is constraint in database? Explain types of constraints with suitable example.	10
2	10.	Explain integrity constraints?	10
2	11.	What are aggregate functions? Explain with examples.	10
2	12.	What are various Data types in SQL?	10
2	13.	Explain various DML commands with neat syntax.	10
2	14.	Write SQL syntax for creating table EMP (EMPNO,ENAME,SALARY,JDATE,DEPT).Write SQL syntax for insert two rows in table, delete one row from table, update salary and view whole table.	10
3	15.	What is Functional dependency? Explain its usage in database design. Explain the properties of Functional dependency.	10
3	16.	Explain detail about Boyce code normal form and third normal form.	10
4	17.	Explain serial schedule and concurrent schedule with suitable examples.	10

4	18.	Explain the Need for Concurrency Control.	10
4	19.	Explain WR conflicts and WW conflicts.	10
4	20.	Write a short note on Two phase locking protocol. What are its advantages and disadvantages?	10
1	1.	What are the advantages of DBMS compare to file processing systems? Explain in detail.	15
1	2.	Draw and explain System structure of Database management system.	15
1	3.	Explain the purpose of the database system. Explain different database users. What are the responsibilities of a DBA?	15
2	4.	Explain various types of data models in detail.	15
2	5.	What are different types of JOIN operation? Explain.	15
2	6.	Explain operations of relational algebra.	15
2	7.	Explain with example various keys used in Database management.	15
2	8.	Briefly explain DDL and DML commands.	15
2	9.	What are the categories of SQL command? Explain.	15
3	10.	Explain 1NF, 2NF and 3NF.	15
3	11.	What do you mean by Normalization? Explain BCNF, 3NF and 2NF with a suitable example.	15
3	12.	Explain the types of File Organization.	15
3	13.	Explain the various indexing schemes used in database environment.	15
3	14.	Explain various hashing techniques.	15
4	15.	What is concurrency? What are the three problems due to concurrency? How the problems can be avoided, explain for one of the three problems.	15

4	16.	Define Serializability. Explain the types of serializability with example.	15
4	17.	List and explain different anomalies in interleaved execution with example.	15
4	18.	Explain in detail about Locking Protocol.	15

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Question Paper Pattern- Model Question Paper

(2)

Q.P Code: 56101

St. Philomena's College (Autonomous) Mysore

II Semester M.Sc. Computer Science Examination May - 2019

Subject: COMPUTER SCIENCE (HC)

Title: DATABASE MANAGEMENT SYSTEM

ime: 3 Hours **Max Marks: 70**

PART – A

Answer any FIVE of the following questions: **2×5=10**

a. What is the difference between a file system and DBMS
b. Mention the categories of data model
c. List out database applications
d. What is tree based indexing?
e. Why do we need normalization?
f. How to define a domain constraint? Give example.
g. What are the 4 important properties of transactions to maintain data in the phase of concurrent access and system failure?

PART – B

Answer one full question in each module: **15×4=60**

MODULE 1

2. a. How does DBMS provide data abstraction? Explain the concept of data independence
   b. Explain different types of interfaces in DBMS
3. a. Write a note on implementation of DBMS
   b. Discuss the advantages of DBMS

MODULE 2

4. a. Explain in detail about key constraints used in database system.
   b. Explain various relational algebra operations with example

OR

PTO

a. Explain about the following clauses with example queries

i)group by ii)order by iii)having

b. Explain insert, delete, update , Grant and invoke statements of SQL.

MODULE-3

a State BCNF. How does it differ from 3NF?

b Explain Hash based indexing.

OR

a. State and explain first normal form and second normal form

b. Explain clustered, primary and secondary index

MODULE 4

Explain ACID properties

OR

a. Write a note on performance of locking

b Explain serializability

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