

**Department Of Computer Science**

**Question Bank**

**2019-20**

**Class : F.Y.B.Sc.(Comp. Sci.)**

**Subject: DBMS- I (CSCO-1102)**

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**Q.1. Multiple Choice questions.**

1. Storage medium categorized in

A. Primary, secondary

B. primary, secondary, tertiary

C. secondary, tertiary

D. only in primary

ANSWER: B

2. Primary storage is part of

A. memory

B. Hardware

C. Software

D. CPU

ANSWER: D

3. Secondary storage contains

A. Magnetic tapes, optical disk

B. Flash memory, magnetic disk

C. Main memory & cache memory

D. All above

ANSWER: B

4. Tertiary storage contains

A. Magnetic tapes, optical disk

B. Flash memory, magnetic disk

C. Main memory & cache memory

D. All above

ANSWER: A

5. Tertiary storage is also called as

- A. On-line storage
- B. Off-line storage
- C. Hard storage
- D. Soft storage

ANSWER: B

6. Secondary storage is also called as

- A. On-line storage
- B. off-line storage
- C. Hard storage
- D. Soft storage

ANSWER: B

7. Primary storage is

- A. Fast access & limited capacity
- B. slower access & higher capacity as secondary
- C. higher capacity & slower access as primary
- D. very useful

ANSWER: A

8. Flash memory is

- A. Costly & small memory
- B. Volatile memory
- C. used in USB
- D. entire database is stored

ANSWER: C

9. Which of the following is not a valid binary operation in the relational algebra

- A. project
- B. union
- C. set difference
- D. cartesian product

ANSWER: A

10. What is a foreign key?

A. A foreign key is a primary key of a relation which is an attribute in another relation

B. A foreign key is a superkey of a relation which is an attribute in more than one other relations

C. A foreign key is an attribute of a relation that is a primary key of another relation

D. A foreign key is the primary key of a relation that does not occur anywhere else in the schema

ANSWER: C

11. Key which specifies that two different tuples cannot have same value is classified as

A. super key

B. simple key

C. parallel key

D. conceptual key

ANSWER: A

12. In relational model terminology, table is considered as

A. range

B. domain

C. relation

D. tupleIn

ANSWER: C

13. formal relational model, set of indivisible values is called

A. range

B. domain

C. relation

D. tuple

ANSWER: B

14. Relational algebra is :

- A. Data Definition Language
- B. Meta Language
- C. Procedural query language
- D. Non procedural language

ANSWER: C

15. Which of the following is not valid unary operation in the relational algebra?

- A. select
- B. min
- C. project
- D. rename

ANSWER: A

16. The operation of a relation X, produces Y, such that Y contains only selected attributes of X. Such an operation is

- A. Projection
- B. Intersection
- C. Union
- D. Difference

ANSWER: A

17. In a 1:N relationship, the foreign key is placed in

- A. either table without specifying parent and child tables
- B. the parent table
- C. the child table
- D. either the parent table or the child table

ANSWER: C

18. A foreign key is

- A. a column containing the primary key of another table
- B. used to define data types
- C. used to define null status
- D. all of the above are above correct

ANSWER: A

19. In a 1:1 relationship, the foreign key is placed in

- A. either table without specifying parent and child tables
- B. the parent table
- C. the child table
- D. either the parent table or the child table

ANSWER: A

20. Each entity is represented as a(n)

- A. tuple
- B. table
- C. attribute
- D. file.

ANSWER: B

22. A foreign key is used to implement relationships between tables

- A. True
- B. False

ANSWER: A

23. An intersection table is required to represent M:N relationships

- A. True
- B. False

ANSWER: A

24. Which of the following indicates the minimum number of entities that must be involved in a relationship

- A. Minimum cardinality
- B. Maximum cardinality
- C. ERD
- D. Greater Entity Count (GEC)

ANSWER: A

25. Properties that describe the characteristics of entities are called

- A. entities
- B. attributes
- C. identifiers
- D. relationships



31. A subquery in an SQL SELECT statement is enclosed in

- A. braces -- {...}
- B. CAPITAL LETTERS
- C. parenthesis -- (...)
- D. brackets -- [...]

ANSWER: C

32. The result of a SQL SELECT statement is a(n) \_\_\_\_\_

- A. report
- B. form
- C. file
- D. table

ANSWER: D

33. Which of the following are the five built-in functions provided by SQL

- A. COUNT, SUM, AVG, MAX, MIN
- B. SUM, AVG, MIN, MAX, MULT
- C. SUM, AVG, MULT, DIV, MIN
- D. SUM, AVG, MIN, MAX, NAME

ANSWER: A

34. To remove duplicate rows from the results of an SQL SELECT statement, the \_\_\_\_\_ qualifier specified must be included

- A. ONLY
- B. UNIQUE
- C. DISTINCT
- D. SINGLE

ANSWER: C

35. Which of the following do you need to consider when you make a table in SQL

- A. Data types
- B. Primary keys
- C. Default values
- D. All of the above.

ANSWER: D

36. Find the SQL statement below that is equal to the following: SELECT NAME FROM CUSTOMER WHERE STATE = 'VA'

- A. SELECT NAME IN CUSTOMER WHERE STATE IN ('VA')
- B. SELECT NAME IN CUSTOMER WHERE STATE = 'VA'
- C. SELECT NAME IN CUSTOMER WHERE STATE = 'V'
- D. SELECT NAME FROM CUSTOMER WHERE STATE IN ('VA')

ANSWER: D

37. SQL can be used to

- A. create database structures only
- B. query database data only
- C. modify database data only
- D. All of the above can be done by SQL

ANSWER: D

38. SQL is

- A. a programming language
- B. an operating system
- C. a data sublanguage
- D. a DBMS

ANSWER: C

39. The condition in a WHERE clause can refer to only one value

- A. True
- B. False

ANSWER: B

40. The attribute AGE is calculated from DATE\_OF\_BIRTH . The attribute AGE is

- A. Single valued
- B. Multi valued
- C. Composite
- D. Derived

ANSWER: D

41. Which of the following is used to denote the selection operation in relational algebra ?

- A. Pi (Greek)
- B. Sigma (Greek)
- C. Lambda (Greek)
- D. Omega (Greek)

ANSWER: B

42. Which of the following is not outer join ?

- A. Left outer join
- B. Right outer join
- C. Full outer join
- D. All of the mentioned

ANSWER: D

43. The \_\_\_\_\_ operation, denoted by -, allows us to find tuples that are in one relation but are not in another.

- A. Union
- B. Set-difference
- C. Difference
- D. Intersection

ANSWER: B

44. Relational Algebra is a \_\_\_\_\_ query language that takes two relation as input and produces another relation as output of the query.

- A. Relational
- B. Structural
- C. Procedural
- D. Fundamental

ANSWER: C

45. To include integrity constraint in a existing relation use :

- A. Create table
- B. Modify table
- C. Alter table
- D. Drop table

ANSWER: C

46. Create table Employee(Emp\_id numeric not null, Name varchar(20) , dept\_name varchar(20), Salary numeric unique(Emp\_id,Name));

insert into Employee values(1002, Ross, CSE, 10000)

insert into Employee values(1006,Ted,Finance, );

insert into Employee values(1002,Rita,Sales,20000);

What will be the result of the query?

- A. All statements executed
- B. Error in create statement
- C. Error in insert into Employee values(1006,Ted,Finance, );
- D. Error in insert into Employee values(1008,Ross,Sales,20000);

ANSWER: D

47. (Select course id from section where semester = 'Fall' and year= 2009) except

(select course id from section where semester = 'Spring' and year= 2010);

This query displays

- A. Only tuples from second part
- B. Only tuples from the first part which has the tuples from second part
- C. Tuples from both the parts
- D. Tuples from first part which do not have second part

ANSWER: D

48. Which relationship is used to represent a specialization entity ?

- A. ISA
- B. AIS
- C. ONIS
- D. WHOIS

ANSWER: A

49. Dates must be specified in the format

- A. mm/dd/yy
- B. yyyy/mm/dd
- C. dd/mm/yy
- D. yy/dd/mm

ANSWER: B

50. If a multivalued dependency holds and is not implied by the corresponding functional dependency, it usually arises from one of the following sources.

- A. A many-to-many relationship set
- B. A multivalued attribute of an entity set
- C. A one-to-many relationship set
- D. Both A and B

ANSWER: D

51. Which one of the following attribute can be taken as a primary key ?

- A. Name
- B. Street
- C. Id
- D. Department

ANSWER: C

52. Which one of the following cannot be taken as a primary key ?

- A. Id
- B. Register number
- C. Dept\_id
- D. Street

ANSWER: D

Q.2) Answer in one sentence.

1. What do you mean by Derived Attribute ?
2. Define Primary key Attribute.
3. What do you mean by Referential Integrity Constraint ?

4. Define Weak Entity.
5. Define - Logical File.
6. List the record based Logical Models.
7. Define - Super Key.
8. Write a relational algebra query to select student with name = "RAM" from student (Roll no, Name, Marks, Grade)
9. What is the difference between Char and Varchar.
10. List five built-in aggregate functions in SQL.
11. Differentiate indexed-sequential file and B + tree file organization.
12. What is an Attribute ?
13. Explain Project Operation.
14. What is Pile File ?
15. What is Foreign Key ?
16. Define Variable Length Record.
17. What is Logical File ?
18. State any one rule to convert E-R diagram into tables.
19. Define prime attribute.
20. What is Transitivity dependency
21. What is partial dependency
22. Define multivalued dependency
23. What is Query Optimization ?
24. Define partial dependency.

### **Q.3. Short answer questions.**

1. What do you mean by Natural Join Operation?
2. Define any two types of File Organization.
3. In sequential file records are added as and when they are available. Comment.

4. Which are two types of DMLs? Give examples.
5. Explain one-to-one relationship with example.
6. Give syntax and example of 'union' relational operator.
7. Write advantages and disadvantages of indexed file organization.
8. Discuss different techniques of renormalization.
9. Discuss major components of E-R diagram.
10. Define any two advantages of DBMS over File System.
11. *Give Armstrong axioms.*
12. What are desirable properties that should be maintained during decomposition?
13. Explain aggregation & its application.
14. Write any four functions of DBA.
15. Consider the following relations :

Musician(m\_no, m\_name, age, m\_city)

Instrument(i\_no, i\_name)

Plays(m\_no, i\_no)

Solve the following algebraic queries :

- (i) List all musicians having age between 30 to 40 years.
- (ii) List all instruments which 'Mr. Ravikumar' plays.
- (iii) List all 'violin' players who live in Mumbai and their age is below 30.
- (iv) List all musicians who play at least one instrument that 'Mr. Ravikumar' plays.

16. Consider relations :

Item(i\_code, i\_name, price)

Order(o\_code, date, cust\_name)

Item\_order(i\_code, o\_code, qty)

Solve the following algebraic queries :

- (i) List all items that are ordered by customers.
- (ii) List all order numbers along with different items and respective items under them.
- (iii) List all orders before 4th October, 2010.
- (iv) List all items along with their prices.
- (v) Find most costly item.

17. Give different operations performed on a file.
18. State the different types of outer join operations.
19. Give any *two* disadvantages of traditional file system.
20. What is generalization ? Explain with an example.
21. What are key constraints ?
22. Explain single valued and multivalued attributes with examples.
23. Consider the relation  $R(B, C, D, E, F, G)$  and the set of FD's  $F = \{B \rightarrow C, DE \rightarrow G, B \rightarrow D, DE \rightarrow F, C \rightarrow F\}$  Compute  $(BE)^+$ .
24. What is DML? Explain procedural and non-procedural DML.
25. Explain Ternary Relationship with examples.
26. Explain symbols which are used to draw entity relationship diagram.
27. 'Relational Algebra is an example of procedural DML'. Comment.
28. Explain and distinguish among the terms Primary Key, Candidate Key and Superkey.
29. Distinguish between Where and Having Clause.
30. List the data types supported by SQL.
31. Consider the set of FD's  $F$ , defined for relation  $R(A,B,C,D,E,F)$  as  $F = \{AB \rightarrow C, G \rightarrow A, BC \rightarrow D, ACD \rightarrow B, BE \rightarrow C, CE \rightarrow FA, CF \rightarrow BD, D \rightarrow EF\}$  Find canonical cover  $F_c$ .

**Q.4. Short Note:**

1. Data Independency.
2. Mapping Cardinality
3. DBMS
4. ERD
5. DBMS Languages
6. DBMS Users
7. DBMS vs File System
8. SQL DATA Types
9. Aggregate functions in SQL
10. Data Abstraction

### **Q.5.Long Answer Questions**

1. Consider the following relation :

Employee (empno, empname, salary, comm..., designation)

Department (deptno, deptname, location)

Employee and Department are related with many to one relationship.

Create RDB for above and solve queries in SQL :

(a) Find out employees who are working at Shrirampur location.

(b) Find the maximum, minimum and average salary for every designation.

(c) Update commission for every employee by 5% who belong to Computer Department.

2. Consider the following relation :

Sales\_order (s\_order, s\_order\_date)

Client (client\_no, name, address)

A client can give one or more sales\_orders, but sales\_order belongs to exactly one client.

Create RDB for above and solve the following queries in SQL :

(a) Change the order date of client\_no 'C004' to 11/01/2012.

(b) Find out the sales\_order of Mr. Ambare client.

(c) List the name of all client in sales\_order\_date.

3. Consider the following relation :

Emp (emp\_id, emp\_name, address, bdate)

Investor (inv\_name, inv\_no, inv\_date, inv\_amt)

Emp and Investor one to many relationship, create RDB for above and solve the following SQL queries :

(a) List the names of employees who are not investors.

(b) Find the distinct names of customers who are either employees or investor or both.

(c) Find the Inv\_amt of particular employee who's Inv\_date '10/01/2012'.

4. Consider the following relation :

Doctor (dno, dname, address, city)

patient (pat\_no, pat\_name, addr, disease)

Doctor and patient are related with many to many. Create RDB in above and solve the following SQL queries:

- (a) Find the no. of patients suffering from "Asthma".
- (b) Find the no. of patients visited by "Dr. Padhghan".
- (c) Delete all patients record suffering from "Diabetes".

5. Consider the following relations :

Game (g\_no, g\_name, no\_of\_players, coach\_name, captain)

Players (p\_no, p\_name).

Game and players are related with many to many relationship:

- (a) List the name of players playing "basketball" and "handball".
- (b) Count the total no. of players whose coach name is "Mr. Ambre".

6. In 'Banking Enterprises', which record information about customers, employees of bank. A customer can be depositor or borrower. An employee of bank can be customer of bank. There are two types of accounts : saving account or current account.

(i) Draw Entity Relationship Diagram.

(ii) Convert E-R Diagram in 3NF.

7. Explain Overall DBMS Structure with neat diagram.

8. Consider the following relations :

Country(Con-code, Name, Capital)

Population(Pop-code, Population)

Country and Population are related with one to one relationship. Create RDB and solve the following queries :

- (i) List highest population country.
- (ii) Give name and population of country whose capital is 'Tokyo'.
- (iii) List names of all countries whose population is greater than 50,00,000.

9. Consider the following relations :

Game(Gno, Gname, No. of Player, Coachname, Captain)

Player(Pno, Pname)

Game and Player are related with many to many relationship. Create a RDB and solve the following queries :

- (i) List names of players playing cricket and hockey.
- (ii) Count no. of players whose coach name is 'Mr. Dev'.
- (iii) List names of players playing game basketball.

10. Consider the following relations :

Item(ino, iname, iqty)

Po(pno, pdate, amt)

Suppliers(sno, sname, saddr)

Item and PO(Product Order) are related with one to many relationship and supplier and po are one to many relationship. Create RDB for above and solve queries:

- (i) Find out pno, pdate and supplier name of the PO which is of maximum amount.
- (ii) List names of suppliers to whom PO is given for 'Mouse'.
- (iii) List names of suppliers and item name in PO's generated on 30 'Dec. 2010'.

11. Consider the following relations :

Doctor(docno, name, specialization)

Hospital(hospno, name, addr)

Doctor and Hospital are related with many to many relation. Create RDB for above and solve queries :

- (i) List names of doctors visiting 'Padghan Hospital' on Monday.
- (ii) List names of Hospitals in 'Pune City' which have more than 10 doctors of 'Surgeon' specialization visiting it.
- (iii) Delete all doctors with specialization 'gynaec'.

12. Car Insurance Company has a set of customers, each of whom owns one or more cars. Each car is associated with zero to any number of recorded accidents :

(i) Draw Entity Relationship Diagram.

(ii) Convert E-R Diagram in 3Nf.