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Roll No. _____

O.M.R. Serial No. :

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Question Booklet Number

3573716

BCA IV Sem. (NEP Back Paper) EXAMINATION, 2025-26
DATABASE MANAGEMENT SYSTEM

Paper Code

B	C	A	4	0	0	2
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Question Booklet Series

D

Time : 1 : 30 Hours]

[Maximum Marks : 75

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. **All** questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.
4. Four alternative answers are mentioned for each question as – A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

(Remaining instructions on the last page)

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गये हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।
4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर- A, B, C तथा D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छँटना है। उत्तर को OMR उत्तर-पत्रक में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

(शेष निर्देश अन्तिम पृष्ठ पर)

1. Prime attribute is:
 - (A) Part of candidate key
 - (B) Non-key attribute
 - (C) Foreign key
 - (D) Derived attribute
2. Super key is:
 - (A) Minimum key
 - (B) Any set of attributes that uniquely identifies a tuple
 - (C) Foreign key
 - (D) Primary key only
3. Candidate key is:
 - (A) Non-unique key
 - (B) Foreign key
 - (C) Composite key
 - (D) Minimal super key
4. A relation is in BCNF if:
 - (A) All attributes are keys
 - (B) Every determinant is a candidate key
 - (C) No attributes exist
 - (D) Only one key exists
5. Which normal form removes transitive dependency?
 - (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 4NF
6. First Normal Form (1NF) requires:
 - (A) No redundancy
 - (B) Atomic attributes
 - (C) No dependency
 - (D) Composite keys
7. Which normal form removes partial dependency?
 - (A) 1NF
 - (B) BCNF
 - (C) 3NF
 - (D) 2NF
8. In functional dependency $A \rightarrow B$, A is called:
 - (A) Dependent
 - (B) Determinant
 - (C) Attribute
 - (D) Relation
9. Functional dependency is represented as:
 - (A) $A \rightarrow B$
 - (B) $A = B$
 - (C) $A + B$
 - (D) A / B

10. Data normalization is used to:

- (A) Increase redundancy
- (B) Reduce redundancy
- (C) Delete data
- (D) Store images

11. In ER diagram, relationship is represented by:

- (A) Rectangle
- (B) Ellipse
- (C) Diamond
- (D) Circle

12. In ER diagram, weak entity is represented by:

- (A) Single rectangle
- (B) Double rectangle
- (C) Ellipse
- (D) Diamond

13. Identifying relationship is used for:

- (A) Strong entity
- (B) Keys
- (C) Attributes
- (D) Weak entity

14. Weak entity depends on:

- (A) Strong entity
- (B) Attribute
- (C) Key
- (D) Relation

15. A weak entity is one that:

- (A) Has no attributes
- (B) Cannot exist without another entity
- (C) Has multiple keys
- (D) Is independent

16. Participation constraint specifies:

- (A) Attribute type
- (B) Entity participation in relationship
- (C) Key value
- (D) Table structure

17. One-to-many relationship means:

- (A) One entity relates to many entities
- (B) Many entities relate to one entity
- (C) Both
- (D) None

18. Cardinality ratio defines:
- (A) Number of attributes
 - (B) Relationship type
 - (C) Number of entity occurrences
 - (D) Key constraints
19. A binary relationship involves:
- (A) One entity
 - (B) Two entities
 - (C) Three entities
 - (D) Four entities
20. Degree of a relationship refers to:
- (A) Number of attributes
 - (B) Number of tables
 - (C) Number of keys
 - (D) Number of participating entities
21. Relationship in ER model represents:
- (A) Attributes
 - (B) Association among entities
 - (C) Keys
 - (D) Tables
22. Derived attributes are:
- (A) Stored in database
 - (B) Calculated from other attributes
 - (C) Primary keys
 - (D) Foreign keys
23. Which of the following is a composite attribute?
- (A) Age
 - (B) Salary
 - (C) Roll number
 - (D) Address
24. A key attribute is used to:
- (A) Store data
 - (B) Identify entities uniquely
 - (C) Create relationships
 - (D) Normalize tables
25. Which attribute uniquely identifies an entity?
- (A) Simple key
 - (B) Composite key
 - (C) Primary key
 - (D) Derived key

26. Attributes are:
- (A) Relationships between entities
 - (B) Keys only
 - (C) Tables in database
 - (D) Properties of entities
27. Which of the following is an example of an entity?
- (A) Age
 - (B) Student
 - (C) Relationship
 - (D) Degree
28. A collection of similar entities is called:
- (A) Entity type
 - (B) Relation
 - (C) Attribute
 - (D) Entity set
29. An entity is best described as:
- (A) A relationship between tables
 - (B) A real-world object distinguishable from others
 - (C) A data type
 - (D) A constraint
30. What does ER stand for?
- (A) Entity Relationship
 - (B) Element Relation
 - (C) Entry Record
 - (D) Entity Record
31. Concurrency control allows:
- (A) Single user
 - (B) Multiple users
 - (C) No user
 - (D) Limited data
32. Data security protects:
- (A) Hardware
 - (B) Software
 - (C) Data
 - (D) Network
33. Data integrity ensures:
- (A) Data loss
 - (B) Data deletion
 - (C) Data duplication
 - (D) Data accuracy
34. DBMS improves:
- (A) Data inconsistency
 - (B) Data sharing
 - (C) Data redundancy
 - (D) Data duplication

35. DBMS reduces:
- (A) Data security
 - (B) Data sharing
 - (C) Data availability
 - (D) Data redundancy
36. Which is harder to achieve?
- (A) Physical independence
 - (B) Logical independence
 - (C) Both
 - (D) None
37. Logical data independence refers to:
- (A) Changes in physical level
 - (B) Changes in conceptual level
 - (C) Changes in hardware
 - (D) Changes in OS
38. Physical data independence refers to:
- (A) Changes in logical schema
 - (B) Changes in physical storage
 - (C) Changes in view
 - (D) Changes in queries
39. Data independence means:
- (A) Data duplication
 - (B) Data storage
 - (C) Data deletion
 - (D) Data separation from programs
40. Internal level describes:
- (A) User view
 - (B) Physical storage
 - (C) Logical structure
 - (D) Query
41. Conceptual level describes:
- (A) User interface
 - (B) Physical storage
 - (C) Logical structure of database
 - (D) Hardware
42. External level describes:
- (A) Physical storage
 - (B) User view
 - (C) Logical structure
 - (D) Data type

43. Three-level architecture includes:
- (A) Internal, External, Conceptual
 - (B) Physical, Logical, View
 - (C) Schema, Table, Row
 - (D) None
44. DBMS architecture defines:
- (A) Hardware structure
 - (B) Software layers
 - (C) Data storage
 - (D) Query language
45. DBMS stands for:
- (A) Data Backup Management System
 - (B) Database Management System
 - (C) Data Base Machine System
 - (D) Data Building Management System
46. The network model represents data as:
- (A) Tables
 - (B) Trees
 - (C) Graphs
 - (D) Arrays
47. In relational model, data is stored in:
- (A) Files
 - (B) Trees
 - (C) Tables
 - (D) Graphs
48. In hierarchical model, data is organized as:
- (A) Graph
 - (B) Tree
 - (C) Table
 - (D) Network
49. Which of the following is a type of data model?
- (A) Relational model
 - (B) Network model
 - (C) Hierarchical model
 - (D) All of the above
50. A data model is:
- (A) Hardware component
 - (B) Collection of concepts for describing data
 - (C) Programming language
 - (D) Operating system

51. Log file is used for:
- (A) Storing queries
 - (B) Indexing
 - (C) Deleting data
 - (D) Recovery
52. Recovery techniques deal with:
- (A) Data deletion
 - (B) System failure handling
 - (C) Query execution
 - (D) Table creation
53. Timestamp ordering uses:
- (A) Locking
 - (B) Keys
 - (C) Time values
 - (D) Tables
54. Shrinking phase means:
- (A) Acquiring locks
 - (B) Releasing locks
 - (C) Reading data
 - (D) Writing data
55. Growing phase in 2PL means:
- (A) Releasing locks
 - (B) Writing data
 - (C) Deleting data
 - (D) Acquiring locks
56. Two-phase locking ensures:
- (A) Serializability
 - (B) Redundancy
 - (C) Data deletion
 - (D) Backup
57. Starvation occurs when:
- (A) Transaction never executes
 - (B) Transaction executes fast
 - (C) Data is lost
 - (D) Data is duplicated
58. Deadlock occurs when:
- (A) One transaction waits
 - (B) Two transactions wait for each other
 - (C) Data is lost
 - (D) Data is duplicated
59. Exclusive lock allows:
- (A) Read only
 - (B) Write only
 - (C) Both read and write
 - (D) No access

60. Shared lock allows:
- (A) Read only
 - (B) Write only
 - (C) Delete
 - (D) Insert
61. Locking is used to:
- (A) Delete data
 - (B) Control access
 - (C) Store data
 - (D) Normalize tables
62. Conflict serializability ensures:
- (A) Same result as serial schedule
 - (B) Faster execution
 - (C) Data deletion
 - (D) Redundancy
63. Serial schedule means:
- (A) Transactions overlap
 - (B) Transactions execute one after another
 - (C) Parallel execution
 - (D) Random execution
64. A schedule is:
- (A) Sequence of operations
 - (B) Table structure
 - (C) Key constraint
 - (D) Query
65. Concurrency control is used to:
- (A) Increase redundancy
 - (B) Delete data
 - (C) Manage simultaneous transactions
 - (D) Create tables
66. Durability ensures:
- (A) Temporary storage
 - (B) Permanent storage after commit
 - (C) Data deletion
 - (D) Data duplication
67. Isolation ensures:
- (A) Transactions run independently
 - (B) Data is permanent
 - (C) Data is deleted
 - (D) Data is duplicated

68. Which ACID property ensures database remains valid after transaction?
- (A) Atomicity
 - (B) Consistency
 - (C) Isolation
 - (D) Durability
69. Which property ensures all operations of a transaction are completed or none?
- (A) Consistency
 - (B) Durability
 - (C) Isolation
 - (D) Atomicity
70. A transaction is:
- (A) A single query
 - (B) A logical unit of work
 - (C) A table
 - (D) A key
71. SQL is a:
- (A) Procedural language
 - (B) Machine language
 - (C) Programming language only
 - (D) Non-procedural language
72. SQL stands for:
- (A) Structured Query Language
 - (B) Simple Query Language
 - (C) Sequential Query Language
 - (D) Standard Query List
73. Natural join is based on:
- (A) All attributes
 - (B) Common attributes
 - (C) Keys only
 - (D) Foreign key only
74. Join operation combines:
- (A) Rows
 - (B) Columns
 - (C) Two relations
 - (D) Keys
75. Cartesian product is denoted by:
- (A) $\times$
 - (B) $\cup$
 - (C) σ
 - (D) π

76. Union operation requires:
- (A) Same number of attributes
 - (B) Same domain
 - (C) Compatible relations
 - (D) All of the above
77. Projection operation is denoted by:
- (A) σ
 - (B) $\times$
 - (C) $\cup$
 - (D) π
78. Selection operation is denoted by:
- (A) π
 - (B) σ
 - (C) $\cup$
 - (D) $-$
79. Relational algebra is:
- (A) Procedural language
 - (B) Non-procedural language
 - (C) Programming language
 - (D) Query language only
80. Referential integrity ensures:
- (A) Valid attribute values
 - (B) Valid foreign key references
 - (C) Unique keys
 - (D) No redundancy
81. Entity integrity constraint ensures:
- (A) No duplicate rows
 - (B) Domain validity
 - (C) Foreign key exists
 - (D) Primary key is not null
82. Integrity constraints ensure:
- (A) Data redundancy
 - (B) Data accuracy and consistency
 - (C) Data deletion
 - (D) Data duplication
83. Foreign key is used to:
- (A) Identify tuple
 - (B) Link relations
 - (C) Remove redundancy
 - (D) Define domain
84. Primary key must be:
- (A) Null
 - (B) Optional
 - (C) Duplicate
 - (D) Unique and not null

85. Cardinality of a relation is:

- (A) Number of columns
- (B) Number of keys
- (C) Number of rows
- (D) Number of attributes

86. Degree of a relation is:

- (A) Number of rows
- (B) Number of columns
- (C) Number of keys
- (D) Number of tables

87. Domain of an attribute means:

- (A) Table name
- (B) Set of possible values
- (C) Key
- (D) Index

88. Attribute refers to:

- (A) Row
- (B) Key
- (C) Table
- (D) Column

89. A tuple in a relation represents:

- (A) Column
- (B) Row
- (C) Table
- (D) Key

90. A relation in DBMS is also known as:

- (A) Column
- (B) Row
- (C) Table
- (D) Key

91. Denormalization is:

- (A) Removing tables
- (B) Adding redundancy
- (C) Removing redundancy
- (D) Adding keys

92. Normalization process is:

- (A) Top-down
- (B) Bottom-up
- (C) Random
- (D) Sorting

93. Join dependency is handled in:
- (A) 3NF
 - (B) 4NF
 - (C) 5NF
 - (D) BCNF
94. Multivalued dependency is handled in:
- (A) 2NF
 - (B) 3NF
 - (C) 4NF
 - (D) 5NF
95. BCNF is stricter than:
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) All of the above
96. 3NF requires:
- (A) 1NF
 - (B) 2NF + no transitive dependency
 - (C) Only atomic values
 - (D) Only keys
97. 2NF requires:
- (A) 1NF + no partial dependency
 - (B) No redundancy
 - (C) No transitive dependency
 - (D) Only keys
98. Transitive dependency occurs when:
- (A) $A \rightarrow B$ and $B \rightarrow C$
 - (B) $A \rightarrow B$ only
 - (C) $B \rightarrow A$
 - (D) No dependency
99. Partial dependency occurs when:
- (A) Non-key depends on whole key
 - (B) Non-key depends on part of composite key
 - (C) Key depends on non-key
 - (D) No dependency exists
100. Non-prime attribute is:
- (A) Not part of candidate key
 - (B) Key attribute
 - (C) Primary key
 - (D) Composite key