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Roll No. _____

Question Booklet Number

O.M.R. Serial No. :

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

DATABASE MANAGEMENT SYSTEM

Paper Code						
B	C	A	4	0	0	2

Question Booklet Series

B

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)

Rough Work
रफ़ कार्य

1. Non-prime attribute is:
 - (A) Not part of candidate key
 - (B) Key attribute
 - (C) Primary key
 - (D) Composite key
2. 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
3. Transitive dependency occurs when:
 - (A) $A \rightarrow B$ and $B \rightarrow C$
 - (B) $A \rightarrow B$ only
 - (C) $B \rightarrow A$
 - (D) No dependency
4. 2NF requires:
 - (A) 1NF + no partial dependency
 - (B) No redundancy
 - (C) No transitive dependency
 - (D) Only keys
5. 3NF requires:
 - (A) 1NF
 - (B) 2NF + no transitive dependency
 - (C) Only atomic values
 - (D) Only keys
6. BCNF is stricter than:
 - (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) All of the above
7. Multivalued dependency is handled in:
 - (A) 2NF
 - (B) 3NF
 - (C) 4NF
 - (D) 5NF
8. Join dependency is handled in:
 - (A) 3NF
 - (B) 4NF
 - (C) 5NF
 - (D) BCNF

9. Normalization process is:
- (A) Top-down
 - (B) Bottom-up
 - (C) Random
 - (D) Sorting
10. Denormalization is:
- (A) Removing tables
 - (B) Adding redundancy
 - (C) Removing redundancy
 - (D) Adding keys
11. A relation in DBMS is also known as:
- (A) Column
 - (B) Row
 - (C) Table
 - (D) Key
12. A tuple in a relation represents:
- (A) Column
 - (B) Row
 - (C) Table
 - (D) Key
13. Attribute refers to:
- (A) Row
 - (B) Key
 - (C) Table
 - (D) Column
14. Domain of an attribute means:
- (A) Table name
 - (B) Set of possible values
 - (C) Key
 - (D) Index
15. Degree of a relation is:
- (A) Number of rows
 - (B) Number of columns
 - (C) Number of keys
 - (D) Number of tables
16. Cardinality of a relation is:
- (A) Number of columns
 - (B) Number of keys
 - (C) Number of rows
 - (D) Number of attributes

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

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

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

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

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

59. External level describes:
- (A) Physical storage
 - (B) User view
 - (C) Logical structure
 - (D) Data type
60. Conceptual level describes:
- (A) User interface
 - (B) Physical storage
 - (C) Logical structure of database
 - (D) Hardware
61. Internal level describes:
- (A) User view
 - (B) Physical storage
 - (C) Logical structure
 - (D) Query
62. Data independence means:
- (A) Data duplication
 - (B) Data storage
 - (C) Data deletion
 - (D) Data separation from programs
63. Physical data independence refers to:
- (A) Changes in logical schema
 - (B) Changes in physical storage
 - (C) Changes in view
 - (D) Changes in queries
64. Logical data independence refers to:
- (A) Changes in physical level
 - (B) Changes in conceptual level
 - (C) Changes in hardware
 - (D) Changes in OS
65. Which is harder to achieve?
- (A) Physical independence
 - (B) Logical independence
 - (C) Both
 - (D) None
66. DBMS reduces:
- (A) Data security
 - (B) Data sharing
 - (C) Data availability
 - (D) Data redundancy

67. DBMS improves:
- (A) Data inconsistency
 - (B) Data sharing
 - (C) Data redundancy
 - (D) Data duplication
68. Data integrity ensures:
- (A) Data loss
 - (B) Data deletion
 - (C) Data duplication
 - (D) Data accuracy
69. Data security protects:
- (A) Hardware
 - (B) Software
 - (C) Data
 - (D) Network
70. Concurrency control allows:
- (A) Single user
 - (B) Multiple users
 - (C) No user
 - (D) Limited data
71. What does ER stand for?
- (A) Entity Relationship
 - (B) Element Relation
 - (C) Entry Record
 - (D) Entity Record
72. 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
73. A collection of similar entities is called:
- (A) Entity type
 - (B) Relation
 - (C) Attribute
 - (D) Entity set
74. Which of the following is an example of an entity?
- (A) Age
 - (B) Student
 - (C) Relationship
 - (D) Degree
75. Attributes are:
- (A) Relationships between entities
 - (B) Keys only
 - (C) Tables in database
 - (D) Properties of entities

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

84. One-to-many relationship means:
- (A) One entity relates to many entities
 - (B) Many entities relate to one entity
 - (C) Both
 - (D) None
85. Participation constraint specifies:
- (A) Attribute type
 - (B) Entity participation in relationship
 - (C) Key value
 - (D) Table structure
86. A weak entity is one that:
- (A) Has no attributes
 - (B) Cannot exist without another entity
 - (C) Has multiple keys
 - (D) Is independent
87. Weak entity depends on:
- (A) Strong entity
 - (B) Attribute
 - (C) Key
 - (D) Relation
88. Identifying relationship is used for:
- (A) Strong entity
 - (B) Keys
 - (C) Attributes
 - (D) Weak entity
89. In ER diagram, weak entity is represented by:
- (A) Single rectangle
 - (B) Double rectangle
 - (C) Ellipse
 - (D) Diamond
90. In ER diagram, relationship is represented by:
- (A) Rectangle
 - (B) Ellipse
 - (C) Diamond
 - (D) Circle
91. Data normalization is used to:
- (A) Increase redundancy
 - (B) Reduce redundancy
 - (C) Delete data
 - (D) Store images

92. Functional dependency is represented as:
- (A) $A \rightarrow B$
 - (B) $A = B$
 - (C) $A + B$
 - (D) A / B
93. In functional dependency $A \rightarrow B$, A is called:
- (A) Dependent
 - (B) Determinant
 - (C) Attribute
 - (D) Relation
94. Which normal form removes partial dependency?
- (A) 1NF
 - (B) BCNF
 - (C) 3NF
 - (D) 2NF
95. First Normal Form (1NF) requires:
- (A) No redundancy
 - (B) Atomic attributes
 - (C) No dependency
 - (D) Composite keys
96. Which normal form removes transitive dependency?
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 4NF
97. 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
98. Candidate key is:
- (A) Non-unique key
 - (B) Foreign key
 - (C) Composite key
 - (D) Minimal super key
99. Super key is:
- (A) Minimum key
 - (B) Any set of attributes that uniquely identifies a tuple
 - (C) Foreign key
 - (D) Primary key only
100. Prime attribute is:
- (A) Part of candidate key
 - (B) Non-key attribute
 - (C) Foreign key
 - (D) Derived attribute

Rough Work
रफ़ कार्य

Example :

Question :

- Q. 1 A C D
- Q. 2 A B D
- Q. 3 A C D

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer Sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager & cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question booklet, then after showing it to the invigilator, get another question booklet of the same series.

उदाहरण :

प्रश्न :

- प्रश्न 1 A C D
- प्रश्न 2 A B D
- प्रश्न 3 A C D

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ.एम.आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ.एम.आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा कक्ष में लॉग-बुक, कैल्कुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्न-पुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्न-पुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।