

Roll No.-----

प्रश्नपुस्तिका क्रमांक
Question Booklet No.

529155

O.M.R. Serial No.

--	--	--	--	--	--	--

BCA (Fourth Semester) Examination, 2024-25

(NEP)

(BCA4002)

DATABASE MANAGEMENT SYSTEM

K-697

Paper Code							
A	6	0	0	0	0	7	T

(To be filled in the
OMR Sheet)

प्रश्नपुस्तिका सीरीज
Question Booklet Series

C

REAL

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.

(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 गए हों या प्रश्न एक से अधिक बार छप गए हो या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(शेष निर्देश अन्तिम पृष्ठ पर)

1. What is the purpose of checkpoints in DBMS recovery ?
 - (A) To delete data
 - (B) To reduce recovery time
 - (C) To schedule transactions
 - (D) To ensure concurrency
2. Which technique records changes to the database before applying them ?
 - (A) Write-ahead logging
 - (B) Deferred updates
 - (C) Rollback
 - (D) Checkpointing
3. What does the isolation property in transactions ensure ?
 - (A) Durability
 - (B) Recovery
 - (C) No interference from other transactions
 - (D) Rollback
4. Which of these ensures durability in DBMS ?
 - (A) Commit operation
 - (B) Rollback operation
 - (C) Shadow paging
 - (D) Isolation level
5. When two transaction wait each other to release resources, it is called :
 - (A) Starvation
 - (B) Deadlock
 - (C) Locking
 - (D) Scheduling

6. Which of the following is a security feature of DBMS ?
- (A) Deadlock detection
 - (B) Normalization
 - (C) Authorization
 - (D) Shadow paging
7. Which command is used to remove a user's privileges ?
- (A) REMOVE
 - (B) DELETE
 - (C) ROVOKE
 - (D) DENY
8. Which command is used to grant access in SQL ?
- (A) GRANT
 - (B) ALLOW
 - (C) PERMIT
 - (D) OPEN
9. What happens during a rollback operation ?
- (A) Transaction is saved permanently
 - (B) Changes are committed
 - (C) All changes are undone
 - (D) System crashes
10. What is shadow paging used for in DBMS ?
- (A) Performance optimization
 - (B) Access control
 - (C) Deadlock resolution
 - (D) Recovery

11. The transaction log does not store :
- (A) Old value
 - (B) New value
 - (C) Table name
 - (D) transaction start time
12. Which one is not a recovery technique ?
- (A) Deferred update
 - (B) Immediate update
 - (C) Shadow paging
 - (D) Indexing
13. A schedule is said to be serializable if it :
- (A) Allows concurrent operations
 - (B) Has only one transaction
 - (C) Is equivalent to a serial schedule
 - (D) Is free from recovery
14. A transaction that completes successfully is said to be :
- (A) Aborted
 - (B) Committed
 - (C) Rolled back
 - (D) Deadlocked
15. The two-phase locking protocol ensures :
- (A) Deadlock occurrence
 - (B) Conflict
 - (C) Serializability
 - (D) Inconsistency

16. Which of the following is not a type of lock ?
- (A) Shared lock
 - (B) Exclusive lock
 - (C) Read-Write lock
 - (D) View lock
17. Which technique is used to manage concurrency in DBMS ?
- (A) Deadlock handling
 - (B) Locking protocols
 - (C) Backup and restore
 - (D) Indexing
18. The problem of lost update occurs in :
- (A) Serial execution
 - (B) Concurrent execution
 - (C) Locking mode
 - (D) Logging mode
19. In DBMS, a transaction is :
- (A) A single SQL command
 - (B) A backup file
 - (C) An individual table
 - (D) A group of operations forming a logical unit
20. Which property ensures that a transaction is either fully completed or full aborted ?
- (A) Consistency
 - (B) Isolation
 - (C) Atomicity
 - (D) Durability

21. In which form is a relation if it removes both partial and transitive dependency ?
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 5NF
22. Functional Dependency is a property of :
- (A) Records
 - (B) Tuples
 - (C) Index
 - (D) Relations
23. Join Dependency is addressed in which normal form ?
- (A) 3NF
 - (B) 4NF
 - (C) 5NF
 - (D) BCNF
24. A relation is in 2NF if :
- (A) It is in 1NF and has no partial dependency
 - (B) It is in 3NF
 - (C) It has multivalued attributes
 - (D) It is fully normalized
25. Which of the following helps eliminate insertion anomalies ?
- (A) Using derived attributes
 - (B) De-normalization
 - (C) Normalization
 - (D) Redundancy

26. Which is a correct step while designing relational schema from EER diagram ?
- (A) Replace weak entities with strong entities
 - (B) Map each entity set to a relation.
 - (C) Ignore relationship
 - (D) Avoid attributes
27. Which of the following best describes decomposition ?
- (A) Combining multiple tables
 - (B) Breaking a relation into smaller relations
 - (C) Deleting data from a relation
 - (D) Removing keys
28. EER stands for :
- (A) Extended Entity Relationship
 - (B) Essential Entity Relationship
 - (C) Enterprise Entity Rules
 - (D) Enhanced ER Rules
29. Which normal form ensures there is no transitive dependency ?
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 5NF
30. What is a transitive dependency ?
- (A) $X \rightarrow Y$ and $Y \rightarrow Z$ implies $X \rightarrow Z$
 - (B) One attribute depending on itself
 - (C) Redundancy due to primary key
 - (D) Multivalued dependency

31. Functional Dependency $X \rightarrow Y$ holds if :
- (A) X and Y are unrelated
 - (B) For every value of X, there is a unique value of Y
 - (C) Y determines X
 - (D) X is always a key
32. In EER to relational mapping, aggregation is implemented using :
- (A) Join tables
 - (B) Multivalued attributes
 - (C) Derived attributes
 - (D) Separate weak entities
33. Which of the following causes data redundancy ?
- (A) 3NF
 - (B) BCNF
 - (C) 1NF
 - (D) 4NF
34. A relation is in 5NF if :
- (A) It is in 3NF and has no join dependency
 - (B) It is in 4NF and every join dependency is implied by candidate keys
 - (C) It has no multivalued attributes
 - (D) It eliminates all transitive dependencies
35. Which normal form removes multivalued dependencies ?
- (A) 3NF
 - (B) 4NF
 - (C) BCNF
 - (D) 2NF

36. Boyce-Codd Normal Form (BCNF) is a stronger version of :
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 4NF
37. A relation is in Third Normal Form (3NF) if :
- (A) It is in 1NF only
 - (B) It has no multivalued dependency
 - (C) It is in 2NF and has no transitive dependency
 - (D) It is in 4NF
38. Which normal form eliminates partial dependency ?
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 5NF
39. A relation is in First Normal Form (1NF) if :
- (A) It has a primary key
 - (B) It contains no multivalued attributes
 - (C) It is free of transitive dependencies
 - (D) It is in BCNF
40. Which of the following best describes a functional dependency ?
- (A) A relation between two attributes where one uniquely determines another
 - (B) A type of key constraint
 - (C) A tuple-level restriction
 - (D) A form of data redundancy

41. In SQL, which keyword is used to eliminate duplicate rows in results ?
- (A) DISTINCT
 - (B) UNIQUE
 - (C) ONLY
 - (D) DIFFERENT
42. Which operation in relational algebra removes duplicates ?
- (A) Selection
 - (B) Projection
 - (C) Union
 - (D) Join
43. SQL joins are used to :
- (A) Create databases
 - (B) Convert queries
 - (C) Drop tables
 - (D) Merge rows from multiple tables
44. In relational algebra, the union operation is only valid when :
- (A) Both relations have different schemas
 - (B) Relations have the same number and type of attributes
 - (C) One is a subset of the other
 - (D) Both relations are empty
45. Which of the following is a DDL command ?
- (A) SELECT
 - (B) INSERT
 - (C) CREATE
 - (D) UPDATE

46. In SQL, the GROUP BY clause is used to :
- (A) Sort row alphabetically
 - (B) Delete groups of rows
 - (C) Group rows sharing a value
 - (D) Filter rows based on a condition
47. The command to update records in SQL is :
- (A) MODIFY
 - (B) UPDATE
 - (C) CHANGE
 - (D) SET
48. Which of the following is not a valid SQL data type ?
- (A) INT
 - (B) VARCHAR
 - (C) NUMERIC
 - (D) TEXTFILE
49. The result of a Cartesian product of two relations R(A, B) and S(C,D) has :
- (A) Attributes A, B
 - (B) Attributes C, D
 - (C) Attributes A, B, C, D
 - (D) Only common attributes
50. Which SQL function returns the number of rows in a query ?
- (A) SUM()
 - (B) COUNT()
 - (C) AVG()
 - (D) TOTAL()

51. The projection operation in relational algebra :
- (A) Removes specific rows
 - (B) Chooses specific columns
 - (C) Filters data
 - (D) Combines tables
52. In SQL, which keyword is used to sort query results ?
- (A) SORT
 - (B) ORDER BY
 - (C) GROUP BY
 - (D) ARRANGE
53. Which SQL command is used to remove a table from a database ?
- (A) DELETE
 - (B) REMOVE
 - (C) DROP
 - (D) CLEAR
54. Which clause in SQL is used to filter rows ?
- (A) SELECT
 - (B) WHERE
 - (C) ORDER BY
 - (D) FROM
55. The selection operation in relational algebra is used to :
- (A) Choose specific attributes
 - (B) Filter tuples based on conditions
 - (C) Combines two relations
 - (D) Remove duplicate tuples

56. Which relational algebra operation combines tuples from two relations ?
- (A) Selection
 - (B) Projection
 - (C) Union
 - (D) Join
57. A foreign key :
- (A) Must be NULL
 - (B) Refers to a primary key in another relation
 - (C) Always refers to its own primary key
 - (D) Must be unique
58. Which of the following is a type of relational constraint ?
- (A) Domain constraint
 - (B) Structural constraint
 - (C) Redundancy constraint
 - (D) Repetition constraint
59. A primary key in a relation :
- (A) Can be NULL
 - (B) Can have duplicate values
 - (C) Uniquely identifies tuples
 - (D) Must be a composite key
60. Which of the following is a property of a relation in the relational model ?
- (A) Ordered tuples
 - (B) Duplicate tuples allowed
 - (C) NULL not allowed
 - (D) Unique attribute names

61. In object modeling, the object is an instance of :
- (A) Subclass
 - (B) Method
 - (C) Class
 - (D) Attribute
62. Which attribute can be further divided into smaller subparts ?
- (A) Simple
 - (B) Composite
 - (C) Derived
 - (D) Key
63. The process of abstracting common features and creating a new entity is known as :
- (A) Aggregation
 - (B) Specialization
 - (C) Generalization
 - (D) Normalization
64. An entity that does not have a sufficient attribute to form a key is called :
- (A) Strong entity
 - (B) Weak entity
 - (C) Superclass
 - (D) Subclass
65. The total participation of an entity in a relationship is shown using :
- (A) Single line
 - (B) Dashed line
 - (C) Double line
 - (D) Arrow

66. Which of the following defines roles in a relationship set ?
- (A) Entities only
 - (B) Attributes
 - (C) Participation of entities
 - (D) Keys
67. Which ER model feature represents inheritance ?
- (A) Aggregation
 - (B) Generalization
 - (C) Specialization
 - (D) Both (B) and (C)
68. Which of the following is a correct example of a weak entity ?
- (A) Student
 - (B) Bank account
 - (C) Invoice
 - (D) Dependent
69. Subclasses inherit :
- (A) Only attributes
 - (B) Only relationships
 - (C) Attributes and relationships
 - (D) Only keys
70. Which of the following is NOT a type of attribute ?
- (A) Simple
 - (B) Derived
 - (C) Compound
 - (D) Static

71. A relationship that connects three entities is called :
- (A) Binary
 - (B) Recursive
 - (C) Ternary
 - (D) Composite
72. Which is true about specialization in ER modeling ?
- (A) Converts attributes into entities
 - (B) Breaks an entity into its subtypes
 - (C) Removes redundant keys
 - (D) Hides weak entities
73. Generalization is a process of :
- (A) Combining two entity sets into a subclass
 - (B) Creating a subset from an entity
 - (C) Identifying common features among entities
 - (D) Removing duplicate entities
74. Which of the following describes the number of entities to which another entity can be associated ?
- (A) Cardinality
 - (B) Modality
 - (C) Aggregation
 - (D) Specialization
75. A diamond in an ER diagram represents :
- (A) Entity
 - (B) Attribute
 - (C) Relationship
 - (D) Constraint

76. A key attribute is used to :
- (A) Store large data
 - (B) Identify entity instances uniquely.
 - (C) Create relationships
 - (D) Perform transactions
77. The relationship between a student and a course is an example of :
- (A) Unary relationship
 - (B) Binary relationship
 - (C) Ternary relationship
 - (D) Weak relationship
78. A weak entity always has :
- (A) No attributes
 - (B) Primary key
 - (C) A partial key and a supporting entity
 - (D) A derived attribute
79. Which of the following is used to represent an attribute in an ER diagram ?
- (A) Rectangle
 - (B) Ellipse
 - (C) Diamond
 - (D) Line
80. In an E-R diagram, an entity set is represented by :
- (A) Rectangle
 - (B) Ellipse
 - (C) Diamond
 - (D) Triangle

81. Which layer of DBMS is closest to the physical storage ?
- (A) External level
 - (B) Conceptual level
 - (C) Internal level
 - (D) View level
82. A data model that supports inheritance is :
- (A) Relational model
 - (B) Hierarchical model
 - (C) Object-oriented model
 - (D) Flat model
83. The process of hiding irrelevant details from users is called :
- (A) Normalization
 - (B) Data abstraction
 - (C) Data integrity
 - (D) Data modeling
84. Which of the following NOT a function of DBMS ?
- (A) Data storage
 - (B) File formatting
 - (C) Concurrency control
 - (D) Backup and recovery
85. In DBMS, metadata is stored in :
- (A) User table
 - (B) Schema
 - (C) Data dictionary
 - (D) Application code

86. Which component of DBMS interacts with the user ?
- (A) Storage Manager
 - (B) Query Processor
 - (C) DDL Compiler
 - (D) Buffer Manager
87. Data abstraction in DBMS is used to :
- (A) Increase redundancy
 - (B) Hide details of data storage
 - (C) Show all data to users
 - (D) Create backups
88. Which data model uses tuples and attributes ?
- (A) Network model
 - (B) Hierarchical model
 - (C) Relational model
 - (D) Object-oriented model
89. What is a data model ?
- (A) A type of database software
 - (B) A diagram to represent program flow
 - (C) A set of concepts to describe data
 - (D) A data mining tool
90. Which of the following is not a level in DBMS architecture ?
- (A) External level
 - (B) Conceptual level
 - (C) Internal level
 - (D) Application level

91. What does logical data independence mean ?
- (A) Changing database without affecting users
 - (B) Changing physical schema only
 - (C) Ability to add new views
 - (D) Changing logical schema without affecting external schemas
92. Which data model uses entities and relationships ?
- (A) Relational model
 - (B) ER model
 - (C) Hierarchical model
 - (D) Object-based model
93. In hierarchical data model, data is organized in a :
- (A) Mesh
 - (B) Graph
 - (C) Tree-like structure
 - (D) Flat structure
94. Physical data independence refers to :
- (A) Ability to change physical schema without affecting logical schema
 - (B) Changing application programs
 - (C) Changing user views
 - (D) Modifying ER diagram
95. Which architecture includes three levels: internal, conceptual and external ?
- (A) File-based architecture
 - (B) Two-tier architecture
 - (C) ANSI/SPARC architecture
 - (D) Cloud architecture

96. DBMS stands for :
- (A) Database Model Software
 - (B) Data Backup Management System
 - (C) Data Business Management Server
 - (D) Database Management System
97. What is a key advantage of the database approach ?
- (A) Manual data entry
 - (B) Increased redundancy
 - (C) Centralized control
 - (D) Program-data dependency
98. Which of the following is a logical data model ?
- (A) Relational
 - (B) Hierarchical
 - (C) Physical
 - (D) File-based
99. In a database system, the data is stored in a _____ manner.
- (A) Random
 - (B) Redundant
 - (C) Structured
 - (D) Manual
100. Which of the following is NOT a characteristic of the database approach ?
- (A) Redundancy control
 - (B) Data isolation
 - (C) Data sharing
 - (D) Concurrency control

4. Four alternative answers are mentioned for each question as – A, B, C & D in the question booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

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

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

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 and 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.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर— A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से एक सही उत्तर छँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

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

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उत्तर निरस्त कर दिया जाएगा।

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 के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, 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 : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरिज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।