



**VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM**  
**(Deemed to be University under section 3 of the UGC Act 1956)**

**Ph.D Entrance Test – November – 2025**

**Faculty of Arts & Sciences / Computer Applications**

**Instructions / Note:**

1. Answer all the questions. Each question carries one mark.
2. No negative marks for wrong answers.
3. Read each question carefully and answer in the OMR sheet provided for each question with only blue/ black pen to fill the circles in the OMR Sheet.
4. Question number 1 - 35 questions belong to Research Methodology component and Question number 36-70 questions belong to the subject at PG level
5. Return the question paper along with the OMR sheet.

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36. What is the machine model for regular languages?

- A. Pushdown automata
- B. Finite automata
- C. Turing machine
- D. Grammar

37. Which machine can simulate all others theoretically?

- A. DFA
- B. PDA
- C. Turing Machine
- D. Moore Machine

38. Which of these is NP-complete?

- A. SAT problem
- B. Addition
- C. Multiplication
- D. String matching

39. Which of these is not a type of automaton?

- A. Moore machine
- B. Mealy machine
- C. Boolean machine
- D. Turing machine



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40. If  $P = NP$ , then \_\_\_\_\_
- A. All NP problems can be solved in polynomial time
  - B. All NP-complete problems are undecidable
  - C. No polynomial-time algorithm exists
  - D. NP-complete problem used for reliable
41. Which algorithm uses greedy method?
- A. Kruskal's algorithm
  - B. Merge sort
  - C. Binary search
  - D. Quick sort
42. What is the data structure uses FIFO order?
- A. Stack
  - B. Queue
  - C. Tree
  - D. Array
43. What is the algorithm uses divide and conquer technique?
- A. Merge Sort
  - B. Bubble Sort
  - C. Insertion Sort
  - D. Selection Sort
44. Which traversal of graph ensures visiting all vertices connected to source before moving to others?
- A. BFS
  - B. DFS
  - C. Inorder
  - D. Preorder
45. Which programming paradigm emphasizes functions and immutability?
- A. Object-oriented
  - B. Procedural
  - C. Functional
  - D. Logic
46. Which of these is an object-oriented programming language?
- A. C
  - B. Java
  - C. Assembly
  - D. BASIC



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47. Which of the following is a stage in compiler design?
- A. Lexical analysis
  - B. Debugging
  - C. Linking
  - D. Execution
48. Recall the compiler phase removes useless code and optimizes performance?
- A. Code generation
  - B. Optimization
  - C. Syntax analysis
  - D. Lexical analysis
49. Which of the following is an example of a compiler optimization technique?
- A. Dead code elimination
  - B. Parsing
  - C. Lexical analysis
  - D. Type checking
50. Which of these is responsible for process scheduling?
- A. Memory manager
  - B. CPU scheduler
  - C. Device manager
  - D. File manager
51. State the memory management technique divides memory into equal parts.
- A. Paging
  - B. Segmentation
  - C. Partitioning
  - D. Fragmentation
52. Which of these is not a deadlock prevention technique?
- A. Hold and wait
  - B. Circular wait prevention
  - C. Preemption
  - D. Resource ordering
53. The main disadvantage of segmentation is \_\_\_\_\_
- A. External fragmentation
  - B. Internal fragmentation
  - C. Overhead of paging
  - D. No protection



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54. What is the key uniquely identifies a record in a table?
- A. Foreign key
  - B. Candidate key
  - C. Primary key
  - D. Alternate key
55. Which SQL clause is used to filter records?
- A. ORDER BY
  - B. GROUP BY
  - C. WHERE
  - D. HAVING
56. Which of these ensures data consistency and integrity?
- A. Constraints
  - B. Views
  - C. Triggers
  - D. Queries
57. Which SQL command is used to grant user privileges?
- A. PERMIT
  - B. GRANT
  - C. ALLOW
  - D. AUTHORIZE
58. Recall the device connects two or more networks?
- A. Hub
  - B. Switch
  - C. Router
  - D. Modem
59. Which layer of the OSI model is responsible for physical transmission?
- A. Network layer
  - B. Physical layer
  - C. Data Link layer
  - D. Transport layer
60. Which device regenerates weak signals in a network?
- A. Repeater
  - B. Switch
  - C. Router
  - D. Gateway



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61. Which routing algorithm uses the Bellman-Ford method?
- A. Link-state routing
  - B. Distance-vector routing
  - C. Static routing
  - D. Flooding
62. Agile methodology emphasizes \_\_\_\_\_
- A. Heavy documentation
  - B. Sequential development
  - C. Iterative and incremental development
  - D. Rigid planning
63. Software Testing ensures that \_\_\_\_\_
- A. The software runs faster
  - B. Software meets requirements and is defect-free
  - C. Software uses minimum memory
  - D. Code is minimized
64. White-box testing focuses on \_\_\_\_\_
- A. User interface
  - B. Internal code structure
  - C. Functional requirements only
  - D. Output only
65. Software metrics are used to \_\_\_\_\_
- A. Measure software quality and performance
  - B. Design the hardware
  - C. Write code faster
  - D. Control costs
66. A common example of knowledge representation is \_\_\_\_\_
- A. Decision tree
  - B. Flowchart
  - C. Gantt chart
  - D. UML diagram
67. Which search method uses heuristics to find optimal paths?
- A. Depth-first search
  - B. A\* algorithm
  - C. Linear search
  - D. Binary search



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68. The main purpose of cloud security is \_\_\_\_\_
- A. To limit internet access
  - B. To protect data and applications from threats
  - C. To improve application speed only
  - D. To provide free software
69. Which type of network is commonly used for IoT sensor communication?
- A. WAN
  - B. LAN
  - C. Wireless Sensor Network
  - D. MAN
70. What is the most direct application of neural networks?
- A. Vector quantization
  - B. Pattern mapping
  - C. Pattern classification
  - D. Control applications

