Paper Code - 3693

M.Sc. (C.A. & IT) Semester-III (Old Course)

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303 Introduction to Algorithms

કુલ સમય :– : ૬૦ મીનીટ કુલ પ્રશ્નો : ૫૦ વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

1. _____ is a procedure or step by step process for solving a problem.
   a. Algorithm b. Flowchart c. Pseudo-code d. All of the above
2. The__ provides pictorial representation of given problem.
   a. Algorithm b. Flowchart c. Pseudo-code d. All of the above
3. The ___ symbol is used to represent decision in flowchart.
   a. Circle b. Rectangle c. Diamond d. None of the above
4. The ___ symbol is used to at the beginning of a flowchart.
   a. Circle b. Rectangle c. Diamond d. None of the above
5. The symbol is used to represent process in flowchart.
   a. Circle b. Rectangle c. Diamond d. None of the above
6. _____ symbol is used to represent input and output operation in flowchart.
   a. Circle b. Rectangle c. Diamond d. Parallelogram
7. _____ is a symbol used connects two symbols of flowchart.
   a. Circle b. Rectangle c. Diamond d. Arrow
8. Actual instructions in flowcharting are represented in ___.
   a. Circle b. Boxes c. Arrows d. Lines
9. A box that can represent two different conditions.
   a. Rectangle b. Diamond c. Circle d. Parallelogram
10. Which of the following is not an advantage of a flowchart?
    a. Better communication b. Efficient coding c. Systematic testing d. Improper documentation
11. Array can be considered as set of elements stored in consecutive memory locations but having _____.
    a. Same data type b. Different data type c. Same scope d. None of the above
12. There are _____ steps to solve the problem.
    a. Seven b. Four c. Six d. Two
13. Recursion is a method in which the solution of a problem depends on .
    a. Larger instances of different problems b. Larger instances of the same problem
    c. Smaller instances of the same problems d. Smaller instances of the different problems
14. Which of the following problems can't be solved using recursion?
    a. Factorial of a number b. Nth Fibonacci number c. Length of a string d. Problems without base case
15. In recursion, the condition for which the function will stop calling itself is _____.
    a. Best case b. Worst case c. base case d. There is no such condition
16. Recursion is similar to which of the following?
    a. Switch case b. Loop c. If- else d. If elif else
17. In general, which of the following methods isn't used to find the factorial of a number?
    a. Recursion b. Iteration c. Dynamic programming d. Non iterative / recursive
18. Which of the following recursive formula can be used to find the factorial of a number?
    a. fact [n] = n * fact (n) b. fact [n] = n* fact (n+1) c. fact [n]= n* fact (n-1) d. fact [n]= n* fact (1)
19. Suppose the first Fibonacci number is 0 and the second is 1.what is the sixth Fibonacci number?
    a.5 b.6 c.7 d.8
20. Which of the following is not a Fibonacci number?
    a. 8 b. 21 c. 55 d. 14
21. Which of the following recursion relations can be used to find the nth Fibonacci number?
    a. f(n)= f(n)+ f(n-1) b. f(n)= f(n)+ f(n+1) c. f(n)= f(n-1) d. f(n)= f(n-1)+ f(n-2)
22. What is the time complexity of the recursive implementation used to find the nth Fibonacci term?
    a. O (1) b. O (n2) c. O (n!) D. Exponential
23. Which technique can be used to get the n^{th} fibonacci term?
    a. Recursion b. Dynamic Programming c. A single for loop d. Recursion, dynamic programming for loops
24. Process of inserting an element in stack is called__
    a. create b. push c. evaluation d. pop
25. In a stack, if a user tries to remove an element from empty stack it is called____
    a. underflow b. empty collection c. overflow d. garbage collection
26. Which data structure is needed to convert infix to postfix notation?
    a. Branch b. Tree c. Queue d. Stack

27. the result of evaluating the postfix expression 5,4,6,+,*,4,9,3,/,+,* is?
a. 600 b. 350 c. 650 d. 588
28. Which of the following is not an inherent application of stack?
a. reversing a string b. evaluation of postfix expression c. implementation of recursion d. job scheduling
29. If the elements 'A','B','C' and 'D' are placed in a stack and are deleted one at a time, what is the order of removal?
a. ABCD b. DCBA c. DCAB d. ABDC
30. Circular queue is also known as__
a. Ring Buffer b. Square Buffer c. Rectangle Buffer d. Curve Buffer
31. Which of the following is not the type of queue?
a. Ordinary Queue b. Single ended Queue c. Circular Queue d. Priority Queue
32. What is other name for a Postfix expression?
a. Normal Polish notation b. Reverse Polish notation c. Warsaw notation d. Infix notation
33. What is objective of tower of Hanoi puzzle?
a. to move all disks to some other rod by following rules
b. to divide the disks equally among the three rods by following rules
c. to move all disks to some other rod in random order
d. to divide the disks equally among three rods in random order
34. The time complexity of the solution tower of hanoi problem using recursion is___
a. O (n^2) b. *O (2^n)* c. O (n log n) d. O (n)
35. Space complexity of recursive solution of tower of hanoi puzzle is____
a. O (1) b. *O (n)* c. O (log n) d. O (n log n)
36. Binary search algorithm cannot be applied to____
a. Pointer array b. Sorted linear array c. Sorted binary trees d. Sorted linked list
37 .__ is the method used by card sorter?
a. Quick b. Heap c. Insertion d. Radix sort
38. In___ search start at the beginning of the list and check every element in the list.
a. Hash search b. Binary search c. Linear search d. Binary tree search
39. Which of the following is an external sorting?
a. Merge sort b. Tree sort c. Bubble sort d. Insertion sort
40. Which of the following is not a stable sorting algorithm?
a. Insertion sort b. Selection sort c. Bubble sort d. Merge sort
41. Which of the following is a stable sorting algorithm?
a .Merge sort b. Heap sort c. Selection sort d. Quick sort
42. Which of the following is not a non-comparison sort?
a. Counting sort b. Bucket sort c. Radix sort d. Shell sort
43. Which of the following sorting algorithms is / are stable
a. Counting sort b. Bucket sort c. Radix sort d. All of the above
44. Which of the following algorithm design technique is used in the quick sort algorithm?
a. Dynamic programming b. Backtracking c. Divide and conquer d. Greedy method
45. Which of the following sorting algorithms is the fastest?
a. Merge sort b. Quick sort c. Insertion sort d. Shell sort
46. On which algorithm is heap sort based on?
a. Fibonacci heap b. Binary tree c. Priority queue d. FIFO
47. Which of the following algorithms has lowest worst case time complexity?
a. Insertion sort b. Selection sort c. Quick sort d. Heap sort
48. The radix sort does not work correctly if each individual digit is sorted using.
a. Insertion sort b. Counting sort c. Selection sort d. Bubble sort
49. What is an external sorting algorithm?
a. Algorithm that uses tape or disk during the sort b. Algorithm that uses main memory during the sort
c. Algorithm that involves swapping d. Algorithm that are considered in place
50. What is the advantage of selection sort over other sorting techniques?
a. It requires no additional storage space b. It is scalable
c. It works best for inputs which are already sorted d. It is faster than any other sorting technique