RAVI MATHS TUITION & TEST PAPERS , WHATSAPP 8056206308

5 Data Structures

12th Standard

Computer Science

Multiple Choice Question 11 x 1 = 11

1) _____are container which store the hetrogeneous elements of any type

(a) Lists (b) stacks (c) Queues (d) Arrays

2) Index number____ represent the first element of the list

(a) 1 (b) -1 (c) 0 (d) all of these

3) Which method is used to add element to a list but at specified index number?

(a) append() (b) extened () (c) insert () (d) all of these

4) Which of the following operator is used to replicate the list in Python?

(a) + (b) * (c) % (d) **

5) 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

6) The postfix form of the expression (A+ B) * (C* D-E) * F / G is?

(a) AB+ CD*E - FG/ ** (b) AB + CD*E-F**G/ (c) AB + CD*E-*F*G/ (d) AB + CDE*-*F*G/

7) The data structure required to check whether an expression contains balanced parenthesis is

(a) Stack (b) Queue (c) Array (d) Tree

8) What data structure would you mostly likely see in a non recursive implementation of a recursive algorithm?

(a) Linked List (b) Stack (c) Array (d) Tree

9) The prefix form of A-BI (C*D ^ E) is

(a) -/*^ ACBDE (b) -A/B*C^DE (c) -ABCD*^DE (d) -A/BC*^DE

10) The result of evaluating the postfix expression 5, 4,6, +,*,4,9,3,1, +,* is?

(a) 600 (b) 350 (c) 650 (d) 588

11) Consider the following operation performed on a stack of size 5.
Push(1);
Pop ();
Push(2);
Push(3);
Pop ():
Push(4);
Pop ();
Pop ()
Push(5);
After the completion of all operation, the number of elements present in stack are

(a) 1 (b) 2 (c) 3 (d) 4

2 Marks 25 x 2 = 50

12) Define a data structure.

13) Find the value of following questions based on list
Value = (45,32,98, -78,- 6, 'Hello', 'Honesty']
(i) Value [5]
(ii) value(- 4)

14) Write a program which will find all such numbers which are divisible by 8 but are not a multiple of 5, between 500 and 1000 (both included).

15) Give difference between an array and a list in Python.

16) How can the members of a list accessed in Python?

17) Write a program to find the sum of all elements in a list

18) Evaluate the following Postfix notation ofexpression:expression: 4,2,*22,5,6+,/,-

19) Evaluate the following postfix notation of expression:
2,3,*,24,2,6,*,/,-

20) Evaluate following postfix expression using a stack:
30, 5, 2, *,12, 6, 1, +, -, 3, +

21) Evaluate the following postfix notation of expression, show status of stack after every operation.
12, 2, /, 34, 20, -, +, 5, +

22) Evaluate the following postfix notation of expression.
False, True, NOT, OR, True, False, AND, OR

23) Write equivalent postfix expressions for the following infix expression:
a+b*d = (a+(b*d))

24) Evaluate following postfix expression using a stack.
28, 8, 4, /, +

25) Evaluate the expression 562 + *124/ - in tabular form showing stack status after every step.

26) Write a program to print a string in reverse order

27) Write a Python program to check if a string is a palindrome or not.

28) Evaluate the following Postfix expression: 20,10, -, 15, 3, /, +,5, *

29) Convert (A+ (B*C - (D / E ^ F) * G) * H) into postfix form showing stack status after every step.

30) Convert (True AND False) OR (False AND True) into postfix form using stack

31) Evaluate the following postfix notation of expression. Show status of stack after every operation.
12,2, *, 24, 20, -, +,8, -

32) Give few applications of stack.

33) Convert to postfix notation ((A+B)C/D+E↑F)/G

34) Evaluate the following postfix notation of expression. Show status of stack after every operation. 22, 11, I, 14,10,-, +, 5, -

35) Evaluate using stack 10, 3,*,30, 2,*,-

36) Evaluate the following postfix expression. Show the status of stack after execution of each operation separately:
2, 13, + , 5, -, 6, 3, /, 5, *, <

3 Marks 9 x 3 = 27

37) Write a Python program to enter two lists and merge them. Also display merged list.

38) Explain the following methods
(i) Insert()
(ii) extend()
(ill) remove()
(iv) pop()

39) Write a program to find the union of two lists which are entered by user.

40) Write an algorithm to evaluate postfix expression.

41) Write an algorithm to convert infix to postfix.

42) Write an algorithm to implement push operation.

43) Write an algorithm to implement pop operation.

44) What are infix, prefix, postfix notations?

45) Write a python program to demonstrate implementation of stack using lists with proper documentation.

4 Marks 3 x 4 = 12

46) Write Add new(Book) and Remove(Book) methods in Python to Add a new Book and Remove a Book from a List of Books, considering
them to act as PUSH and POP operations of the data structure stack.

47) Write a function to push any student's information to stack.

48) Write a program to implement a stack for these book details (bookno, bookname). That is, now each item node of the stack contains two types of information a bookno and its name. Just implement push and display operations.

****