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4th Sem / Comp
Subject:- Data Structures Using C

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

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- c) Binary list d) Linked list

Q.5 Which of the following is the infix expression? (CO2)

a) $A+B*C$ b) $+A*BC$
c) $ABC+*$ d) None of the above

Q.6 If the elements '1', '2', '3' and '4' are added in a stack, so what would be the order for the removal? (CO3)

a) 1234 b) 2134
c) 4321 d) None of the above

Q.7 What is the outcome of the prefix expression $+, -, *, 3, 2, /, 8, 4, 1?$ (CO2)

a) 12 b) 11
c) 5 d) 4

Q.8 Which of the following principle does Queue use? (CO3)

a) LIFO principle b) FIFO principle
c) Linear tree d) Ordered array

Q.9 In the linked list implementation of queue, where will the new element be inserted? (CO3)

a) At the middle position of the linked list
b) At the head position of the linked list
c) At the tail position of the linked list
d) None of the above

Q.10 A linear data structure in which insertion and deletion operations can be performed from both the ends is _____ (CO2)

a) Queue b) Deque
c) Priority queue d) Circular queue

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 _____ are the variables which can be accessed by all modules. (CO1)

Q.12 Define pointer. (CO1)

Q.13 Graphical representation of logical flow of the program is called _____ (CO1)

Q.14 Define Algorithm. (CO1)

Q.15 The Height of a Binary Tree is the maximum level of its Tree. (T/F). (CO5)

Q.16 Two nodes are called _____ if they have same parents. (CO5)

Q.17 The post-order traversal of a binary Tree starts with processing of _____ node. (CO5)

Q.18 _____ Tree can have at the most two children. (CO5)

Q.19 Write one advantages of arrays. (CO3)

Q.20 Process of removing an element from stack is called _____ (CO3)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Write an algorithm to insert a node in a binary search tree. (CO5)

Q.22 Write down a linear search algorithm. (CO6)

Q.23 Define searching. How linear search is different from binary search. (CO6)

Q.24 Define the following terms with a suitable diagram : (CO5)

i) Root

ii) Leaf Node

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Q.25 Why Tree is called a non-linear data structure? (CO5)

Q.26 How a 1-D array is represented in the memory? (CO3)

Q.27 List various operations associated with Linear Arrays. (CO3)

Q.28 Write down an algorithm to delete an Item from a linear array. (CO3)

Q.29 Write down an algorithm to illustrate Queue operations using arrays. (CO3)

Q.30 Explain a circular queue in brief. (CO3)

Q.31 Convert the following infix expression into its equivalent prefix and postfix expressions.

A*(B+D)/E-F*(G+H/K) (CO2)

Q.32 Discuss various applications of stacks. (CO2)

Q.33 Define Recursion. Write a recursive function to calculate factorial of a number 'n'. (CO2)

Q.34 Write down an algorithm to insert an element in the beginning of a linked list. (CO3)

Q.35 Write down similarities and dissimilarities in stacks and queues. (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain array implementation of stack. (CO3)

Q.37 Explain different ways of traversing a binary tree with suitable examples. (CO5)

Q.38 Explain Bubble Sort algorithm with a suitable example. (CO6)

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