

W/30

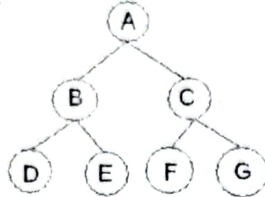
BAYERO UNIVERSITY, KANO
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCES
2020/2021 First Semester CA Test
CSC2253/CSC2251 - (Data Structures and Algorithms)

Instruction: Attempt all the questions

Time Allowed: 45 mins

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1. Which traversal around the tree below will give the order D - B - E - A - F - C - G
a. Pre-order traversal ☒ b. Post-order traversal ☐ c. In-order traversal ☐



2. A Tree is a _____ type of Data Structure.
a. sequential ☐ b. linear ☐ c. Non-Linear ☒
3. A node that does not have any child nodes is called.
a. Child ☐ b. Root ☒ c. Leaf ☒
4. What is the Level of the Root of a Tree?
a. 0 ☒ b. 1 ☐ c. -1 ☐
5. Traversing a binary expression trees in preorder yields _____ form of expression
a. prefix ☐ b. postfix ☐ c. infix ☒
6. Stacks are implemented using List and Queue
7. While converting binary tree into extended binary tree, all the original nodes in binary tree are _____
8. A graph is said to be directed if its edges are assigned data.
9. The sorting technique where array to be sorted is partitioned again and in such a way that all elements less than or equal to partitioning element appear after it is called Bubble sort
10. What is Data Structure?
a. The type of the variables ☐ b. Addresses of the variables ☐ c. The memory representation of data ☒
11. Which data structure is used in breadth first search of a graph to hold nodes? Linked List
12. In the graph traversal we process all of a vertex's descendants before we move to an adjacent vertex.
13. Which Data Structure is used to manage Printer Buffer?
a. Stack ☐ b. Queue ☐ c. Linked List ☒
14. Which One of the following is a hierarchical data structure?
a. Linked list ☐ b. Stack ☐ c. Tree ☒
15. Which data structure is used in evaluating mathematical expressions with parentheses?
a. Stack ☐ b. Queue ☐ c. Tree ☒
16. Suppose you opened a notepad, a music player, an excel sheet, and also you are doing your data structure programming simultaneously. Your OS implements which data structure for it?
a. Queue ☒ b. Stack ☐ c. Linked list ☐
17. If Upper bound is represented by 99 and lower bound by 0 in a 0 based array, then the range of the array is 99
18. In Linear search start at the beginning of the list and check every element in the list.
19. What condition do you check before pushing onto a stack?
a. Stack Underflow ☐ b. Stack Overflow ☐ c. Stack Full ☒
20. Which of the following stack operations could result in stack underflow?
a. Is empty ☐ b. Continuously pushing ☐ c. Continuously popping ☒

21. If the characters 'D', 'C', 'B', 'A' are placed in a queue (in that order), and then removed one at a time, in what order will they be removed? 'D', 'C', 'B', 'A'
22. The Non leaf nodes of a tree are also known as Child nodes.
23. Traversing a tree in order of left, right and then root is called?
a. Inorder b. Postorder c. Preorder
24. When new data are to be inserted into a data structure, but there is no available space, this situation is usually called Overflow.
25. A vertex of indegree zero in a directed graph is called first.
26. Selection sort first finds the first element in the list and put it in the first position.
27. $S = A \times B - C + D \times E \times F - + ^$, Assume that $A=3, B=2, C=1, D=1, E=2, F=3$ The value of S is 11
28. A Stack is a DS
a. LIFO b. FIFO c. LILO
29. what is the infix expression of the given Postfix expression : $AB+C*$
a. $A*B+C$ b. $A+B*C$ c. $(A+B)*C$
30. In a Single Link List node contains no links.