No. of Printed Pages : 4

Roll No. 180842/170842/120842/30833

4th Sem / Branch : Computer Engg
Subject:- Data Structure using C

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Which of the following operations is performed more efficiently by double linked list than by singly linked list? (CO3)

a) Deleting a node whose location in given
b) Searching of an unsorted list for a given item
c) Inverting a node after the node with given location
d) Traversing a list to process each node

Q.2 The situation when in a linked list START=NULL is (CO3)

a) Underflow b) Overflow
c) Houseful d) Saturated

Q.3 Which of the following real world scenarios would you associate with a stack data structure?

a) Piling up of chairs one above the other
b) People standing in a line to be serviced at a counter
c) Offer services based on the priority of the customer
d) Tatkal Ticket Booking in IRCTC

Q.4 What is the term for inserting into a full queue known as (CO4)

a) Overflow
b) Underflow
c) Null pointer exception
d) Program won't be compiled

Q.5 Evaluate the following statement using infix evaluation algorithm and choose the correct answer. 1+2*3-2

a) 3 b) 6
c) 5 d) 4

Q.6 What is the other name for a postfix expression? (CO5)

a) Normal polish Notation
b) Reverse polish Notation
c) Warsaw notation
d) Infix Notation

Q.7 Which among the following is not a palindrome? (CO2)

a) Madam b) Dad
c) Malayalam d) Maadam

Q.8 Which matrix has most of the elements (not all) as zero? (CO2)

a) Identify Matrix b) Unit Matrix
c) Sparse Matrix d) Zero Matrix

Q.9 What will be the resulting array after reversing arr[]={3,5,4,2}? (CO2)

a) 2,3,5,4 b) 4,2,3,5
c) 5,4,2,3 d) 2,4,5,3

Q.10 To obtain a prefix expression, which of the tree traversals is used? (CO5)

a) Level -order traversal
b) Pre-order traversal
c) Post-order traversal
d) In-order traversal

SECTION-B

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

Q.11 _____variable are accessed by all modules of the C program. (CO1)

Q.12 Length of an array calculated by the formula UB+LB+1 (True/False) (CO2)

Q.13 Give formula to calculate address of an element in ROW MAJOR representation of array. (CO2)

Q.14 If FRONT and REAR both are equal to NULL it indicates that the queue is_____ (CO4)

Q.15 Back traversal is possible in_____linked list (CO3)

Q.16 Dqueue stands for _____ (CO4)

Q.17 In stack elements can PUSH and POP through _____ only (CO4)

Q.18 Binary search for an element in array cannot be conducted if it is not_____ (CO6)

Q.19 The evaluation of same expression in infix, prefix and postfix notation will give different results (True/False) (CO5)

Q.20 Tree is a _____data structure (CO5)

SECTION-C

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

Q.21 Give any five differences between an Array and Linked list (CO3)

Q.22 Describe various types of data in C language (CO1)

Q.23 Explain primitive and Non-primitive data structure (CO1)

Q.24 Give algorithm for adding a node at the end of the linked list (CO3)

Q.25 Give three differences between sequential and binary searching (CO6)

Q.26 Give algorithm for adding an element in a queue (CO4)

Q.27 What is the limitation of a linear queue? How is it removed? (CO4)

Q.28 The inorder and postorder traversal of a tree are as follows. Create the tree and traverse it in preorder form (CO5)

Inorder D G B A H E I C F
Postorder G D B H I E F C A

Q.29 Sort of the following list of element using Heap Sort. (CO6)

18 12 21 19 11 15 17 13

Q.30 What are the various ways of traversing a binary tree? Explain with example (CO5)

Q.31 Define the following terms (CO1)
a. Stack b. Recursion c. array

Q.32 What are the operations that can be performed on a doubly linked list? Write a algorithm on addition of an element at the end of the doubly linked list? (CO3)

Q.33 Discuss the underflow and overflow conditions in Data structures? (CO4)

Q.34 Give the algorithm for insertion of an element in a circular queue? (CO4)

Q.35 Discuss the following terms associated with a tree (CO5)

1. Path
2. Level
3. Degree of a node
4. terminal node
5. Root node

SECTION-D

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

Q.36 What are the different types of Arrays? Explain how element of arrays are stored in memory (CO2)

Q.37 Write short notes on (CO1)
a. Structured Programming
b. Top Down Approach

Q.38 Write algorithm for bubble sort? Explain with a suitable example. (CO6)