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MIDTERM EXAMINATION
CS301- Data Structures

Question No: 1 (Marks: 1) - Please choose one
A queue where the de-queue operation depends not on FIFO, is called a priority queue

- ► False
- ► **True (Page 101)**

Question No: 2 (Marks: 1) - Please choose one
The data of the problem is of 2GB and the hard disk is of 1GB capacity, to solve this problem we should

- ► Use better data structures
- ► **Increase the hard disk space (Page 5)**
- ► Use the better algorithm
- ► Use as much data as we can store on the hard disk

Question No: 3 (Marks: 1) - Please choose one
Consider the function X as under

```
int X (int& Value)
{
return Value;
}
```

Now a and b are integers in a calling function. Which one of the following is a valid call to the above function X.

- ► a = X (b) ;
- ► **a = X (&b) ;**
- ► a = X (*b) ;
- ► None of the given options

Here function argument passing by reference method is used, so when we call a function we will give the variable reference as parameter.

Question No: 4 (Marks: 1) - Please choose one
In the call by value methodology, a copy of the object is passed to the called function.

- ► False
- ► **True (Page 202)**

Question No: 5 (Marks: 1) - Please choose one
The tree data structure is a

- ► Linear data structure
- ► **Non-linear data structure (Page 112)**
- ► Graphical data structure
- ► Data structure like queue

Question No: 6 (Marks: 1) - Please choose one
When should you use a **const reference** parameter?

► Whenever the parameter has huge size.
► **Whenever the parameter has huge size, the function changes the parameter within its body, and you do NOT want these changes to alter the actual argument.**
► Whenever the parameter has huge size, the function changes the parameter within its body, and you DO want these changes to alter the actual argument.
► Whenever the parameter has huge size, and the function does not change the parameter within its body.

Declaring a parameter as a const simply means that the function can't change the value of its parameters.

Question No: 7 (Marks: 1) - Please choose one
Here is the start of a C++ class declaration:

```
class foo
  {
  public:
    void x(foo f);
    void y(const foo f);
    void z(foo f) const;
    ...
```

Which of the three member functions can alter the PRIVATE member variables of the foo object that activates the function?
► Only x can alter the private member variables of the object that activates the function.
► Only y can alter the private member variables of the object that activates the function.
► Only z can alter the private member variables of the object that activates the function.
► **Two of the functions can alter the private member variables of the object that activates the function.**

Only the x and y can alter the private member variable of the foo class object. Last Option is more correct but not exact. In the last option the two function name are not mentioned

Question No: 8 (Marks: 1) - Please choose one
What is the maximum depth of recursive calls a function may make?

► 1
► 2
► n (where n is the argument)
► **There is no fixed maximum**

Question No: 9 (Marks: 1) - Please choose one
Suppose n is the number of nodes in a complete Binary Tree then maximum steps required for a search operation are,
► **$Log_2 (n+1) -1$ (Page 139)**
► $Log_2 (n+1)$
► $Log_2 (n) – 1$
► $Log_2 (n)$

Question No: 10 (Marks: 1) - Please choose one
In the linked list implementation of the stack class, where does the push member function places the new entry on the linked list?

- ► **At the head (Page 53)**
- ► At the tail
- ► After all other entries that are greater than the new entry.
- ► After all other entries that are smaller than the new entry.

Question No: 11 (Marks: 1) - Please choose one
Suppose we have a *circular* array implementation of the queue class, with ten items in the queue stored at data[2] through data[11]. The CAPACITY is 42, i.e., the array has been declared to be of size 42. Where does the push member function place the new entry in the array?

- ► data[1]
- ► data[2]
- ► data[11]
- ► **data[12]**

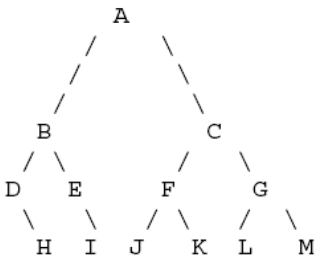
Question No: 12 (Marks: 1) - Please choose one
The expression AB+C* is called?

- ► Prefix expression
- ► **Postfix expression (Page 70)**
- ► Infix expression
- ► None of these

Question No: 13 (Marks: 1) - Please choose one
_____ is a binary tree where every node has a value, every node's left subtree contains only values less than or equal to the node's value, and every node's right subtree contains only values that are greater then or equal?

- ► Strictly Binary Tree
- ► **Binary Search tree** **Click here for detail**
- ► AVL tree
- ► All of these

Question No: 14 (Marks: 1) - Please choose one
Consider the following binary search tree (BST):



If node A in the BST is deleted, which two nodes are the candidates to take its place?

- ► J and I
- ► H and E
- ► D and E
- ► **L and M**

Question No: 15 (Marks: 1) - Please choose one
Let's call the node as that requires re-balancing. Consider the two cases given below:
1) An insertion into left sub tree of the left child of a
2) An insertion into right sub tree of the right child of a.
Which of the following statement is correct about these two cases?
1) The insertion occurs outside (i.e., left-left or right-right) in cases 1 and 2 single rotation can fix the balance in these two cases.
2) The insertion occurs inside ((i.e., left-left or right-right) in cases 1 and 2. single rotation cannot fix the balance in these two cases

Question No: 16 (Marks: 1) - Please choose one
We access elements in AVL Tree in,

- ► Linear way only
- ► **Non Linear way only**
- ► Both linear and non linear ways
- ► None of the given options.

Question No: 17 (Marks: 2)
AVL Tree is,

- ► **Non Linear data structure** **Click here for detail**
- ► Linear data structure
- ► Hybrid data structure (Mixture of Linear and Non Linear)
- ► None of the given options.

MIDTERM EXAMINATION

Question No: 1 (Marks: 1) - Please choose one
Which one of the following statement is NOT correct .

- **In linked list the elements are necessarily to be contiguous** **Click here for detail**
- In linked list the elements may locate at far positions in the memory
- In linked list each element also has the next to it
- In an array the elements are contiguous

Question No: 2 (Marks: 1) - Please choose one
Each operator in a postfix expression refers to the previous _____ operand(s).

- One
- **Two (Page 67)**
- Three
- Four

Question No: 3 (Marks: 1) - Please choose one
Which one of the following calling methods does not change the original value of the argument in the calling function?

- None of the given options
- **Call by passing the value of the argument** **Click here for detail**
- Call by passing reference of the argument
- Call by passing the address of the argument

Question No: 4 (Marks: 1) - Please choose one
A tree is an AVL tree if

- Any one node fulfills the AVL condition
- At least half of the nodes fulfill the AVL condition
- **All the nodes fulfill the AVL condition** **(Page 213)**
- None of the given options

Question No: 5 (Marks: 1) - Please choose one
Suppose currentNode refers to a node in a linked list (using the Node class with member variables called data and nextNode). What statement changes currentNode so that it refers to the next node?

- currentNode ++;
- currentNode = nextNode;
- currentNode += nextNode;
- **currentNode = currentNode->nextNode;**

Question No: 6 (Marks: 1) - Please choose one
A queue where the de-queue operation depends not on FIFO, is called a priority queue

- ► False
- ► **True (Page 101)**

Question No: 7 (Marks: 1) - Please choose one
Which one is a self- referential data type?

- ► Stack
- ► Queue
- ► Link list
- ► **All of these** **Click here for detail**

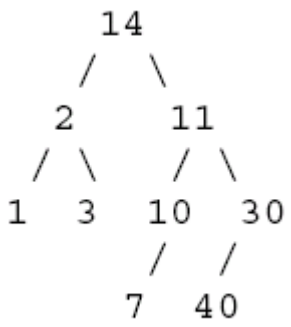
Question No: 8 (Marks: 1) - Please choose one
Each node in doubly link list has,

- ► 1 pointer
- ► **2 pointers (Page 39)**
- ► 3 pointers
- ► 4 pointers

Question No: 9 (Marks: 1) - Please choose one
I have implemented the queue with a linked list, keeping track of a front pointer and a rear pointer. Which of these pointers will change during an insertion into an *EMPTY* queue?

- ► Neither changes
- ► Only front pointer changes.
- ► **Only rear pointer changes.**
- ► Both change.

Question No: 10 (Marks: 1) - Please choose one
Consider the following tree.



How many of the nodes have at least one sibling?

► 8
► 7
► **5**
► **6**

A sibling is an element that shares the same parent with another element

Question No: 11 (Marks: 1) - Please choose one
The nodes with no successor are called _____

► Root Nodes
► **Leaf Nodes**
► Both of these
► None of these

Question No: 12 (Marks: 1) - Please choose one
AVL Tree is,

► **Non Linear data structure** **Click here for detail**
► Linear data structure
► Hybrid data structure (Mixture of Linear and Non Linear)
► None of the given options.

Question No: 13 (Marks: 1) - Please choose one
We access elements in AVL Tree in,

► Linear way only
► **Non Linear way only**
► Both linear and non linear ways
► None of the given options.

Question No: 14 (Marks: 1) - Please choose one
A binary search tree should have minimum of one _____ node/s at each level,

► One
► Two Click here for detail
► Three
► Four

Question No: 15 (Marks: 1) - Please choose one
Consider the following statements.

(i) A binary tree can contain at least 2^L Nodes at level L.
(ii) A complete binary tree of depth d is a binary tree that contains 2^L Nodes at each level L between 0 and d, both inclusive.
(iii) The total number of nodes (T_n) in a complete binary tree of depth d is $2^{d+1} - 1$.
(iv) The height of the complete binary tree can be written as $h = \log_2 (T_n+1)-1$ where T_n is Total number of Nodes.

Which one of the following is correct in respect of the above statements regarding the Binary trees?

► (i) and (iii) only
► (i), (ii) and (iii) only
► (ii) and (iii) only
► **(ii), (iii) and (iv) only** **Click here for detail**

Question No: 16 (Marks: 1) - Please choose one
"+" is a _____*operator.*

► Unary
► **Binary (Page 64)**
► Ternary
► None of the above

MIDTERM EXAMINATION

Question No: 1 (M a r k s: 1)
A subscript of an array may be an integer or an integer expression.
► **True** **Click here for detail**
► False

Question No: 2 (M a r k s: 1)
Doubly Linked List always has one NULL pointer.
► True
► **False (Page 43)**

Question No: 3 (M a r k s: 1)
In which of the traversal method, the recursive calls can be used to traverse a binary tree ?

► **In preorder traversal only (Page 143)**
► In inorder traversal only
► In postorder traversal only
► All of the given options

Question No: 4 (M a r k s: 1)
A tree is an AVL tree if
► Any one node fulfills the AVL condition
► At least half of the nodes fulfill the AVL condition
► **All the nodes fulfill the AVL condition (Page 213)**
► None of the given options

Question No: 5 (M a r k s: 1)
Suppose currentNode refers to a node in a linked list (using the Node class with member variables called data and nextNode). What boolean expression will be true when cursor refers to the tail node of the list?

► **(currentNode == null)**
► (currentNode->nextNode == null)
► (nextNode.data == null)
► (currentNode.data == 0.0)

Question No: 6 (M a r k s: 1) - Please choose one
Suppose that the class declaration of SomeClass includes the following function prototype.
bool LessThan(SomeClass anotherObject);
Which of the following tests in the client code correctly compares two class objects alpha and beta?

► if (alpha < beta)
► **if (alpha.LessThan(beta))** **Click here for detail**
► if (LessThan(alpha, beta))
► if (LessThan(alpha).beta)

Question No: 7 (M a r k s: 1)
In C what is the operation that you can not do with primitive types?
► Assign a value to primitive type using a literal
► Declare primitive types to be constant using the Const keyword
► **Create a new instance of primitive type with New keyword** **Click here for Detail**
► None of these

Question No: 8 (M a r k s: 1)
The operation for adding an entry to a stack is traditionally called :
► add
► append
► insert
► **push** **(Page 53)**

Question No: 9 (M a r k s: 1)
The operation for removing an entry from a stack is traditionally called:
► delete
► peek
► **pop** **(Page 53)**
► remove

Question No: 10 (M a r k s: 1)
Consider the following sequence of push operations in a stack:
stack.push('7');
stack.push('8');
stack.push('9');
stack.push('10');
stack.push('11');
stack.push('12');

► **7 8 9 10 11 12**
► 9 8 11 10 7 12
► 9 10 8 11 12 7
► 9 10 8 12 7 11

Question No: 11 (M a r k s: 1)
_____ is the maximum number of nodes that you can have on a stack-linked list ?
► Zero
► 2n (where n is the number of nodes in linked list)
► **Any Number** **Click here for detail**
► None of these

Question No: 12 (M a r k s: 1)
Which of the following can be used to reverse a string value,
► **Stack** **Click here for detail**
► Queue
► Both of these
► None of these

Question No: 14 (M a r k s: 1)
AVL Tree is,

► **Non Linear data structure** **Click here for detail**
► Linear data structure
► Hybrid data structure (Mixture of Linear and Non Linear)
► None of the given options.

Question No: 15 (M a r k s: 1)
The following are statements related to queues.
(i) The last item to be added to a queue is the first item to be removed
(ii) A queue is a structure in which both ends are not used
(iii) The last element hasn't to wait until all elements preceding it on the queue are removed
(iv)A queue is said to be a last-in-first-out list or LIFO data structure.

Which of the above is/are related to normal queues?
► (iii) and (ii) only
► (i), (ii) and (iv) only
► (ii) and (iv) only
► **None of the given options** **Click here for detail**

Question No: 16 (M a r k s: 1)
An array is a group of consecutive related memory locations.

► **True** **Click here for detail**
► False

MIDTERM EXAMINATION

Question No: 1 (Marks: 1) - Please choose one
In an array we can store data elements of different types.

► True
► **False (Page 7)**

Question No: 2 (Marks: 1) - Please choose one
In an array list the current element is

► **The first element** **Click here for detail**
► The middle element
► The last element
► The element where the current pointer points to

Question No: 3 (Marks: 1) - Please choose one
Which one of the following calling methods does not change the original value of the argument in the calling function?
► None of the given options
► **Call by passing the value of the argument** **Click here for detail**
► Call by passing reference of the argument
► Call by passing the address of the argument

Question No: 4 (Marks: 1) - Please choose one
Which one of the following statements is NOT correct?

► **Array size can be changed after its creation.** **Click here for detail**
► Link List size can be changed after its creation
► Binary Search Tree size can be changed after its creation
► AVL Tree size can be changed after its creation

Question No: 5 (Marks: 1) - Please choose one
Suppose that the class declaration of SomeClass includes the following function prototype. bool LessThan(SomeClass anotherObject);
Which of the following tests in the client code correctly compares two class objects alpha and beta?

► if (alpha < beta)
► **if (alpha.LessThan(beta))** **Click here for detail**
► if (LessThan(alpha, beta))
► if (LessThan(alpha).beta)

Question No: 6 (Marks: 1) - Please choose one
A queue is a----- data structure, whereas a stack is a -----data structure.

► **FIFO, LIFO (Page 161,54)**
► LIFO,FIFO
► none of these
► both of these

Question No: 7 (Marks: 1) - Please choose one
Which one of the following operators has higher priority than all of others?

► **Multiplication operator** **Click here for detail**
► Minus operator
► Plus operator
► Exponentiation operator

Question No: 8 (Marks: 1) - Please choose one
Each node in Binary Search Tree has

► 1 pointer
► **2 pointers** **Click here for detail**
► 3 pointers
► 4 pointers

Question No: 9 (Marks: 1) - Please choose one
Four statements about trees are below. Three of them are correct. Which one is INCORRECT?

► Trees are recursively defined multi-dimensional data structures tree
► The order of a tree indicates a maximum number of children allowed at each node of the
► A search tree is a special type of tree where all values (i.e. keys) are ordered
► **If Tree1's size is greater than Tree2's size, then the height of Tree1 must also be greater than Tree2's height.**
Click here for detail

Question No: 10 (Marks: 1) - Please choose one
Which of the following is "TRUE" about arrays,

► We can increase the size of arrays after their creation.
► We can decrease the size of arrays after their creation.
► We can increase but can't decrease the size of arrays after their creation.
► **We can neither increase nor decrease the array size after their creation.** **Click here for detail**

Question No: 11 (Marks: 1) - Please choose one
Searching an element in an AVL tree take maximum in AVL tree,

► $Log_2(n+1)$
time (where n is no. of nodes
► $Log_2(n+1)$ -1
► **1.44 Log_2n** **(Page 227)**
► 1.66 Log_2n

Question No: 12 (Marks: 1) - Please choose one
There is/are case/s for rotation in an AVL tree,
► 1
► 3
► 2
► **4** **(Page 229)**

Question No: 13 (Marks: 1) - Please choose one
Consider the following statements.
(i) A binary tree can contain at least 2^L Nodes at level L.
(ii) A complete binary tree of depth d is a binary tree that contains 2^L Nodes at each level L between 0 and d, both inclusive.
(iii) The total number of nodes (T_n) in a complete binary tree of depth d is $2^{d+1} - 1$.
(iv) The height of the complete binary tree can be written as $h = \log_2 (T_n+1)-1$ where T_n is Total number of Nodes.

Which one of the following is correct in respect of the above statements regarding the Binary trees?

► (i) and (iii) only
► (i), (ii) and (iii) only
► (ii) and (iii) only
► **(ii), (iii) and (iv) only** **Click here for detail**

Question No: 14 (Marks: 1) - Please choose one
Consider the following infix expression.
5 + 6/2
If one converts the above expression into postfix, what would be the resultant expression?

► 56/ + 2
► **5 6 2 / +** **(Page 66)**
► 5 6 / 2 +
► /62 + 5

Question No: 15 (Marks: 1) - Please choose one
Which of the following is a non linear data structure?

► Linked List
► Stack
► Queue
► **Tree** **(Page 112)**

Question No: 16 (Marks: 1) - Please choose one
"+" is a *operator*.

► Unary
► **Binary** **(Page 64)**
► Ternary
► None of the above

MIDTERM EXAMINATION

1. Addition of new items in stack make the pointer ---------- by 2

a. Increment, bits
b. Increment, bytes
c. Decrement, bits
d. Decrement, bytes **Click here for detail**

2. Next item in a linked list is known as
a. Index
b. Item
c. Node **Click here for detail**
d. Child

3. What will be the postfix notation of 5+6/2.
a. 56+/2
b. 562+/
c. 562/+ **(Page 66)**
d. 5+62/

4. In an AVL tree to delete a parent with two childs in a straight line following rotations will be required:-
a. Single
b. Double
c. Triple
d. None.

5. To check the depth of an AVL tree following time will be taken:-
a. 1.66 $Log_2 n$
b. 1.44 $Log_2 n$ **(Page 227)**
c. $Log_2 (n+1)-1$
d. 1.66 $Log_2 n (n+1)$

6. BST is a Structure:-
a. Linear
b. Non Linear **Click here for detail**
c. Circular
d. None of Above

7. After creation of an array:-
a. Size can be increase but can not be decreased.
b. Size can be decreased but can not be increased.
c. Size can neither be increased nor be decreased. **Click here for detail**
d. Size can be increased and can also be decreased.

8. Each node in a BST has Pointers:-
a. 1
b. 2 **Click here for detail**
c. 3
d. 4

9. Highest Operators Precedence is of the following operator:-

a. Plus
b. Minus
c. Multiply **Click here for detail**
d. Exponentiation

10. Following are the linear data structures:-
a. Stacks
b. Queues
c. Both a & b (Page 52, 87)
d. None of the above

11. Each entry which points to a null value in a Singly Linked List is known as:-
a. Node
b. First Node
c. Last Node
d. Head Node

12. Non recursive calls are faster than the Recursive calls.
a. True (Page 323)
b. False

13. Tree data structure is a
a. Linear
b. Non Linear (Page 112) rep
c. Circular
d. None of Above

14. What will be the valid postfix notation of A+B*C-D
a. ABC+*D-
b. ABC*+D- (According to rule)
c. ABCD+-*
d. AB+D*C

15. When an operator is used in between two operands this is which type of notation
a. Prefix
b. Postfix
c. Infix (Page 64)
d. None of the Above

MIDTERM EXAMINATION

Question No: 1 (Marks: 1) - Please choose one
Which one of the following is a valid postfix expression?
► ab+c*d-
► **abc*+d- (According to rule)**
► abc+*d-
► (abc*)+d-

Question No: 2 (Marks: 1) - Please choose one
The tree data structure is a
► Linear data structure
► **Non-linear data structure (Page 112)**
► Graphical data structure
► Data structure like queue

Question No: 3 (Marks: 1) - Please choose one
A **Compound Data Structure** is the data structure which can have multiple data items of same type or of different types.Which of the following can be considered compound data structure?
► **Arrays** **Click here for detail**
► LinkLists
► Binary Search Trees
► All of the given options

Question No: 4 (Marks: 1) - Please choose one
Suppose a pointer has been declared in main but has not assigned any variable address then
►That pointer points to First byte in main function
►**That pointer contains a NULL value**
►None of these
►**That pointer points to any memory address**

Question No: 5 (Marks: 1) - Please choose one
Here is the start of a C++ class declaration:

```
class foo
{
public:
void x(foo f);
void y(const foo f);
void z(foo f) const;
...
```

Which of the three member functions can alter the PRIVATE member variables of the foo object that activates the function?

►**Only x can alter the private member variables of the object that activates the function.**
►Only y can alter the private member variables of the object that activates the function.
►Only z can alter the private member variables of the object that activates the function.

►**Two of the functions can alter the private member variables of the object that activates the function.**

Only the x and y can alter the private member variable of the foo class object. Last Option is more correct but not exact. In the last option the two function name are not mentioned

Question No: 6 (Marks: 1) - Please choose one
The operation for removing an entry from a stack is traditionally called:
► delete
► peek
► **pop (Page 53)**
► remove

Question No: 7 (Marks: 1) - Please choose one
Which statement of the following statements is incorrect?
► Lists can be implemented by using arrays or linked lists
► A list is a sequence of one or more data items
► Stack is a special kind of list in which all insertions and deletions take place at one end
► **Stacks are easier to implement than lists**

Question No: 8 (Marks: 1) - Please choose one
Parameters in function call are passed using,
► **Stack (Page 80)**
► Queue
► Binary Search Tree
► AVL Tree

Question No: 9 (Marks: 1) - Please choose one
Consider the following sequence of push operations in a stack:
stack.push('7');
stack.push('8');
stack.push('9');
stack.push('10');
stack.push('11');
stack.push('12');

►**7 8 9 10 11 12**
►9 8 11 10 7 12
►9 10 8 11 12 7
►9 10 8 12 7 11

Question No: 10 (Marks: 1) - Please choose one
What is the maximum depth of recursive calls a function may make?
► 1
► 2
► n (where n is the argument)
► **There is no fixed maximum**

Question No: 11 (Marks: 1) - Please choose one
Consider the following function:

```
void test_a(int n)
{
cout << n << " ";
if (n>0)
test_a(n-2);
}
```

What is printed by the call test_a(4)?

► **4 2 0**
► 0 2 4
► 0 2
► 2 4

Question No: 12 (Marks: 1) - Please choose one
Queue follows,
► Last in First out
► First in Last out
► **First in First out (Page 87)**
► None of these

Question No: 13 (Marks: 1) - Please choose one
is a binary tree where every node has a value, every node's left subtree contains only values less than or equal to the node's value, and every node's right subtree contains only values that are greater then or equal ?
►**Strictly Binary Tree**
►**Binary Search tree** **Click here for detail**
►AVL tree
►All of these

Question No: 14 (Marks: 1) - Please choose one
Four statements about trees are below. Three of them are correct. Which one is INCORRECT?
►**Trees are recursively defined multi-dimensional data structures** **Click here for detail**
►The order of a tree indicates a maximum number of childen allowed at each node of the tree
►A search tree is a special type of tree where all values (i.e. keys) are ordered
►If Tree1's size is greater than Tree2's size, then the height of Tree1 must also be greater than Tree2's height.

Question No: 15 (Marks: 1) - Please choose one
Below is a binary search tree. If we delete the value 50 using the algorithm we discussed, what value will be in the root of the remaining tree?
► 50
► 60
► 70
► **80**

Question No: 16 (Marks: 1) - Please choose one
Is a data structure that can grow easily dynamically at run time without having to copy existing elements?
► Array
► **List**
► Both of these
► None of these

MIDTERM EXAMINATION

Question No: 1 (Marks: 1) - Please choose one
Which one of the following statement is NOT correct .
► **In linked list the elements are necessarily to be contiguous** Click here for detail
► In linked list the elements may locate at far positions in the memory
► In linked list each element also has the address of the element next to it
► In an array the elements are contiguous

Question No: 2 (Marks: 1) - Please choose one
In a program a reference variable, say x, can be declared as
► **int &x ;** Click here for detail
► int *x ;
► int x ;
► None of the given options

Question No: 3 (Marks: 1) - Please choose one
Linked lists are collections of data items "lined up in a row" , insertions and deletions can be made only at the front and the back of a linked list.
► True
► **False** Click here for detail

Question No: 4 (Marks: 1) - Please choose one
A Linear Data Structure is the data structure in which data elements are arranged in a sequence or a linear list. Which of the following is Non Linear Data Structure?
► Arrays
► LinkLists
► **Binary Search Trees** Click here for detail
► None of these

Question No: 5 (Marks: 1) - Please choose one
A queue where the de-queue operation depends not on FIFO, is called a priority queue
►False
► **True (Page 101)**

Question No: 6 (Marks: 1) - Please choose one
Which one of the following statements is correct?
► **Array size is fixed once it is created** Click here for detail
► Link List size is fixed once it is created.
►Binary Search Tree size is fixed once it is created
► AVL Tree size is fixed once it is created

Question No: 7 (Marks: 1) - Please choose one
Which one of the following is correct about pointers?
►They always point to different memory locations
►They may point to a single memory location
►The address of two pointer variables is same
► None of these

Question No: 8 (Marks: 1) - Please choose one
Which of the following abstract data types are NOT used by Integer Abstract Data type group?
►short
►Int
►**float** Click here for detail
►long

Question No: 9 (Marks: 1) - Please choose one
The operation for adding an entry to a stack is traditionally called :
►add
►append
►insert
►**push (Page 53)**

Question No: 10 (Marks: 1) - Please choose one
The operation for removing an entry from a stack is traditionally called:

►delete
►peek
►**pop (Page 53)**
►remove

Question No: 11 (Marks: 1) - Please choose one
We can add elements in QUEUE From _____
►Front
►**Rear (Page 91)**
►From Both Rare and Front
►None of these

Question No: 12 (Marks: 1) - Please choose one
The difference between a binary tree and a binary search tree is that ,a binary search tree has

► **two children per node whereas a binary tree can have none, one, or two children per node** Click here for detail
► in binary search tree nodes are inserted based on the values they contain
►in binary tree nodes are inserted based on the values they contain
►none of these

Question No: 13 (Marks: 1) - Please choose one
Suppose n is the number of nodes in a complete Binary Tree then maximum steps required for a search operation are,
► **$Log_2 (n+1) -1$ (Page 139)**
►$Log_2 (n+1)$
►$Log_2 (n) – 1$
►$Log_2 (n)$

Question No: 14 (Marks: 1) - Please choose one
The following is a segment of a C program.
```
int  pqr(BinaryNode t)
{ if (t == null )
return -1;
else
return 1+max(pqr(t.left),pqr(t.right))  }
```
Identify, what the above program intend(s) to do?

►Compute the height of a binary tree using an in-order traversal
►Compute the height of a binary tree using a pre-order traversal
►Compute the depth of a binary tree using a pre-order traversal
►Compute the depth of a binary tree using a post-order traversal

Question No: 15 (Marks: 1) - Please choose one
Consider the following infix expression:
3 + 5 * 6 – 7 * (8 + 5)
Which of the following is a correct equivalent expression(s) for the above?
► 3 6 5 + * 7 5 8 + - *
► 3 6 5 7 5 8 + * + - *
► 3 5 6 + * 7 8 5 + - *
► **3 5 6 * + 7 8 5 + * -**

Question No: 16 (Marks: 1) - Please choose one
An array is a group of consecutive related memory locations.
► **True** Click here for detail
► False

Question No: 17 (Marks: 1)

Is this a correct statement? Give answer in Yes or No.

A node cannot be deleted, when the node to be deleted has both left and right subtrees.

False ---- No, it can be deleted.

Question No: 18 (Marks: 1)

Deleting a leaf node in binary search tree involves setting _____ pointer/s of that node's parent as null.

1

2

3

4