

1.) Evaluate the following data declaration and expression

```
double a, s = 4.5, q = 7.0, r = 2.0;
int k = 8, m = 11;
```

```
if (!(s * 2 <= k + r) && q > r * 3.0)
    a = (int) (k+s);
else
    a = s + m %8;
```

Only one of the following statements is true. Which one is it?

- a) a equals to 12.5
- b) a equals to 5.5
- c) a equals to 12.0
- d) a equals to 7.5

2.) Consider the following function

```
int foo ( char *s1, char *s2)
{
    int c = 0, s, p, found;
    for (s = 0; s1[s] != '\0'; s++)
    {
        for(p=0, found = 0; s2[p] != '\0'; p++)
        {
            if(s2[p] == s1[s])
            {
                found = 1;
                break;
            }
        }
        if(!found) c++;
    }
    return c;
}
```

If we were to make the following call to foo what value it return?

```
foo("Asia Pacific", "aeiou");
```

- a) 5 c) 7
- b) 6 d) 8

3.) Which one of the following statements correctly describes the purpose of the function foo in the previous question?

- a.) Count the all the characters in s1 that are not found in s2.
- b) Count the all the characters in s2 that are not found in s1.
- c) Count the all the characters that are common to both s1 and s2.
- d) Count the all the characters in s2 that are found in s1.

4.) What is the efficiency of the function foo?

- a) $O(n!)$
- b) $O(n^2)$
- c) $O(n \lg_2 n)$
- d) $O(n)$

5.) What is the efficiency of removing an item from a linkedlist?

- a) $O(1)$
- b) $O(n^2)$
- c) $O(n \lg_2 n)$
- d) $O(n)$

6.) Which one is the correct answer from the following code

```
void test(int *k)
{
    *k = 9999;
    cout << "k in test :" << *k << endl;
}
int main()
{
    int x = 0;
    cout << "x in main :" << x << endl;
    test (&x);
    cout << "x after test :" << x << endl;}
```

Only one of the following statements is true. Which one is it?

- a.) x in main : 0
k in test : 9999
x after test : 0
- b.) x in main : 0
k in test : 9999
x after test : 9999
- c.) x in main : 0
k in test : ERROR
x after test : 0
- d.) x in main : 0
k in test : 9999
x after test : ERROR

7.) Which one is the correct answer from the following code

```
void test(int *x)
{
    *x = 9999;
    cout << x << endl;
    cout << &x << endl;
}
int main()
{
    int x = 0;
    cout << &x << endl;
    test (&x);
    cout << &x << endl;
}
```

Only one of the following statements is true. Which one is it?

- a.) 0x7fff54ad7b8c
0x7fff54ad7b8c
0x7fff54ad7b28
0x7fff54ad7b8c

b.) 0x7fff54ad7b8c
 0x7fff54ad7b28
 0x7fff54ad7b28
 0x7fff54ad7b8c

c.) 0x7fff54ad7b8c
 0x7fff54ad7b8c
 0x7fff54ad7b8c
 0x7fff54ad7b8c

d.) 0x7fff54ad7b28
 0x7fff54ad7b28
 0x7fff54ad7b28
 0x7fff54ad7b28

8.) Which one is the correct answer from the following code

```
int main()
{
    int x = 0;
    cout << x << endl;
    cout << &x << endl;
    int *y = &x;
    cout << *y << endl;
    cout << &y << endl;
    cout << y << endl;
    int &z = *y;
    cout << &z << endl;
    cout << *z << endl;
    cout << z << endl;
}
```

Only one of the following statements is true. Which one is it?

a.) 0
0x7fff53612b3c
0
0x7fff53612b30
0x7fff53612b3c
0x7fff53612b3c
0x7fff53612b3c
0

b.) 0
0x7fff53612b3c
0
0x7fff53612b30
ERROR
0x7fff53612b3c
0x7fff53612b3c
0

c.) 0
0x7fff53612b3c
0
ERROR
ERROR
ERROR
0x7fff53612b3c
0

d.) 0
0x7fff53612b3c
0
0x7fff53612b30
0x7fff53612b3c
0x7fff53612b3c
ERROR
0

9.) Which one is the correct answer from the following code

```
void test(int &k)
{
    k = 9999;
    cout << "k in test :" << k << endl;
}
int main()
{
    int x = 0;
    cout << "x in main :" << x << endl;
    int *j = &x;
    test (*j);
    cout << "x after test :" << x << endl;
}
```

Only one of the following statements is true. Which one is it?

- a.) x in main : 0
k in test : 9999
x after test : 0
- b.) x in main : 0
k in test : 9999
x after test : 9999
- c.) x in main :0
k in test : 9999
x after test : ERROR
- d.) x in main :0
k in test : ERROR
x after test : 0

10.) Which one is the correct answer from the following code

```
void test(int x)
{
    x = 9999;
    cout << "x in test :" << x << endl;
}
int main()
{
    int x = 0;
    cout << "x in main :" << x << endl;
    test (x);
    cout << "x after test :" << x << endl;
}
```

Only one of the following statements is true. Which one is it?

- a.) x in main :0
x in test :ERROR
x after test :ERROR
- b.) x in main :0
x in test :0
x after test :0
- c.) x in main : 9999
x in test :0
x after test :0
- d.) x in main :0
x in test :9999
x after test :0

11.) Which one is the correct answer from the following code

```
int main()
{
    int x = 0;
    cout << x++ << endl;
    cout << x << endl;
    cout << ++x << endl;
    cout << x << endl;
    cout << -x << endl;
    cout << --x << endl;
    cout << x << endl;
    cout << x-- << endl;
    cout << +x << endl;
    cout << x << endl;
}
```

Only one of the following statements is true. Which one is it?

a.) 0
1
2
2
-2
1
0
1
0
0

b.) 0
1
2
2
-1
1
1
1
0
0

c.) 0
1
2
2
-2
0
1
1
0
0

d.) 0
1
2
2
-2
1
1
1
0
0

12.) What is ANSI stands for? And what is ISO stands for?

13.) Which one is the correct answer from the following code?

```
#include <iostream>
using namespace std;

int x = 6;
int y = 10;
void foo;

int main()
{
    foo();
    cout<<"x in main : " << x << endl;
    cout<<"y in main : " << y << endl;
    return 0;
}

void foo()
{
    Y = 3;
    X = 8;
    cout<< "y in foo : " << y << endl;
    cout<< "x in foo : " << x << endl;
}
```

```
}
```

Only one statement is true. Which one is it?

- a.) y in foo : 3
x in foo : 8
x in main : 8
y in main : 10
- b.) y in foo : 3
x in foo : 8
x in main : 6
y in main : 10
- c.) y in foo : 10
x in foo : 6
x in main : 6
y in main : 3
- d.) y in foo : 3
x in foo : 8
x in main : 8
y in main : 3

14.) Choose **TWO** of the following code is called "CALL BY REFERENCE" ?

- | | |
|--|--|
| a.)void foo(int *y) { *y = 5; } int main() { int y = 3; foo(y); return 0; } | b.)void foo(int y) { y = 5; } int main() { int y = 3; foo(y); return 0; } |
| c.)void foo(int *y) { *y = 5 } int main() { int y = 3; foo(&y); return 0; } | d.)void foo(int &y) { y = 1000; } int main() { int y = 3; foo(y); return 0; } |

15.) What is the output when the following code fragment is executed?

```
int main()
{
    char ch;
    char title[] = "Titanic";
    ch = title[1];
    cout<< title << endl;
    cout<< ch << endl;
}
```

- a.) Titanic
T
- b.) Titinic
i
- c.) Tiiinic
T
- d.) Titiiic
I

16.) Which one is the correct answer from the following code?

```
#include <iostream>
using namespace std;
int main()
{
    const int LENGTH = 21;
    char message[LENGTH];
    cout<<"Please enter anything here : ";
    cin.getline(message,LENGTH,'\n');
    cout<< message << endl;
    return 0;
}
```

If the input is **you have to response them in a good way** what that message will give the output to the user? (Please choose one of the following answers below)

- a.) you have to response
- b.) you have to response them in
- c.) you have to response them in a good
- d.) you have to response them in a good way

17.) The strcmp function receives 2 strings s1 and s2. If s1 comes before s2 alphabetically, it returns -1, if it comes after s2 it returns a 1 and if s1 and s2 are the same it returns 0. Study the following four pieces of code. Only one correctly implements strcmp. Which one is it?

| | |
|---|--|
| <pre>a.) int strcmp(char *s1, char * s2) { while(s1 == s2) { if(*s1 == '\0') return 0; s1++; s2++; } if(s1 < s2) return -1; else return 1; }</pre> | <pre>b.) int strcmp(char *s1, char * s2) { while(*s1 != *s2) { if(*s1 == '\0') return 0; else if(*s1 < *s2) return -1; else return 1; s1++; s2++; } }</pre> |
| <pre>c.) int strcmp(char *s1, char * s2) { for(; *s1 == *s2; s1++, s2++) { if(*s1 == '\0') return 0; } if(s1 < s2) return -1; else return 1; }</pre> | <pre>d.) int strcmp(char *s1, char * s2) { for(; *s1 == *s2; s1++, s2++) { if(*s1 == '\0') return 0; else if(*s1 < *s2) return -1; else return 1; } }</pre> |

18.) A doubly linked list makes use of the following struct and class.

```
template <typename dataType> struct dnode {  
    dataType data;  
    dnode *prev, *next;  
    // constructors, destructors and other functions, including  
  
    dnode(const dataType& dataItem, dnode *prevPtr, dnode  
    *nextPtr) : data(dataItem), prev(prevPtr), next(nextPtr) {  
  
    } };
```

```
    template <typename dataType> class dlist  
    {  
private:  
    dnode<dataType> *head;  
    dnode<dataType> *tail;  
    int numItems;  
public:  
  
    // points to first item in list // points to last item in list  
  
    // constructors, destructors and other functions, including  
  
    void pop_front()  
    };
```

Only one of the following four functions correctly implements the pop_front function. Which one is it?

```
a) void pop_front()  
{  
    if (head == NULL) return;  
    dnode<dataType> *removeNode = head;  
    head = head->next;  
    tail = tail->prev;  
    head->prev = NULL;  
    delete removeNode;  
    numItems--;  
}
```

```

b) void pop_front()
{
    if (head == NULL) return;
    dnode<dataType> *removeNode = head;
    if (head != NULL) {
        head = head->next;
        head->prev = NULL;
    }
    else {
        tail = NULL;
    }
    delete removeNode;
    numItems--;
}

c) void pop_front()
{
    if (head == NULL) return;
    dnode<dataType> *removeNode = head;
    head = head->next;
    head->prev = NULL;
    if (head == NULL) {
        tail = NULL;
    }
    delete removeNode;
    numItems--;
}

d) void pop_front()
{
    if (head == NULL) return;
    dnode<dataType> *removeNode = head;
    head = head->next;
    if (head == NULL) {
        tail = NULL; }
    else {
        head->prev = NULL;
    }
    delete removeNode;
    numItems--;
}

```

19.) According to this code below what is the output will show?

```
#include <iostream>
using namespace std;

int main()
{
    enum color_type {red, orange, yellow, green, blue,
        violet};
    color_type shirt, pants;
    shirt = red;
    pants = blue;
    cout << shirt << "    " << pants << endl;
    return 0;
}
```

Just one answer is correct. Please choose from the following option.

- a.) 0 4
- b.) red blue
- c.) 1 5
- d.) none of the following

20.) According to this code below what is the output will show?

```
#include <iostream>
using namespace std;

int main()
{
    const int LENGTH = 21;
    char message[LENGTH];
    cout << "Enter a sentence" << endl;
    cin >> message;
    cout << message << endl;
    return 0;
}
```

for the input please enter ***"C++ is easy to learn for anyone"***.
What is the output? Please choose from the following options.

- a.) c++
- b.) c++ is easy to learn
- c.) c++ is easy to learn for
- d.) c++ is easy to learn for anyone

21.) What is the output when this piece of code executed?

```
#include <iostream>
using namespace std;

int main()
{
    int n, k = 5;
    n = (100 % k ? k + 1 : k - 1);
    cout << "n = " << n << " k = " << k << endl;

    return 0;
}
```

please choose one correct answer.

- a.) n = 4 k = 5
- b.) n = 4 k = 6
- c.) n = 6 k = 4
- d.) n = 5 k = 4

22.) what is the output when this code executed?

```
#include <iostream>
using namespace std;

int main()
{
    int n;
    float x = 3.8;
    n = int(x);
    cout << "n = " << n << endl;
    return 0;
}
```


please choose one correct answer.

- a.) 4
- b.) 3.8
- c.) 3
- d.) 3.0

23.) Please choose from the following which one is the correct one to display for odd or even number?

a.)#include <iostream>

```
using namespace std;
```

```
int main()
{
```

```
    int number;
```

```
    cout << "please enter a number ";
```

```
    cin >> number;
```

```
    if(!cin.good())
```

```
    {
```

```
        cout << "please enter the right data";
```

```
    }
```

```
    else
```

```
    {
```

```
        if(number % 2 == 0)
```

```
        {
```

```
            cout << number << " is an Even number" << endl;
```

```
        }
```

```
        else
```

```
        {
```

```
            cout << number << " is an Odd number" << endl;
```

```
        }
```

```
    }
```

```
}
```

```
b.)#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int number;
```

```
    cout << "please enter a number ";
```

```
    cin >> number;
```

```
    if(cin.good())
```

```
    {
```

```
        cout << "please enter the right data";
```

```
    }
```

```
    else
```

```
    {
```

```
        if(number % 2 == 0)
```

```
        {
```

```
            cout << number << " is an Odd number" << endl;
```

```
        }
```

```
        else
```

```
        {
```

```
            cout << number << " is an Even number" << endl;
```

```
        }
```

```
    }
```

```
}
```

```
c.)#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int number;
```

```
    cout << "please enter a number ";
```

```
    cin >> number;
```

```
    if(cin.good())
```

```
    {
```

```
        cout << "please enter the right data";
```

```
    }
```

```
    else
```

```
    {
```

```
        if(number % 2 == 0)
```

```
        {
```

```
            cout << number << " is an Even number" << endl;
```

```
        }
```

```
        else
```

```

        {
            cout << number << " is an Odd number" << endl;
        }
    }
}

```

d.)#include <iostream>

```
using namespace std;
```

```
int main()
{
    string number;
    cout << "please enter a number ";
    cin >> number;
    if(!cin.good())
    {
        cout << "please enter the right data";
    }
    else
    {
        if(number % 2 == 0)
        {
            cout << number << " is an Even number" << endl;
        }
        else
        {
            cout << number << " is an Odd number" << endl;
        }
    }
}

```

24.) After the following code execute, what is the result of this code?

```
#include <iostream>

using namespace std;

int main()
{
    int n;
    cout << (n = 4) << ", ";
    cout << (n == 4) << ", ";
    cout << (n > 3) << ", ";
    cout << (n < 4) << ", ";
    cout << (n = 0) << ", ";
    cout << (n == 0) << ", ";
    cout << (n > 0) << ", ";
    cout << (n && 4) << ", ";
    cout << (n || 4) << ", ";
    cout << (!n);
    return 0;
}
```

Please choose from the following option. What is the result?

- a.) 4, 1, 1, 0, 0, 1, 0, Error, Error, 1
- b.) 4, 4, 1, 0, 0, 1, 0, 1, 0, 1
- c.) 4, 1, 1, 0, 0, 1, 0, 4, 4, 1
- d.) None of the following

25.) What is the output when the following code fragment is executed?

```
#include <iostream>

using namespace std;

int main()
{
    int i = 5, j = 6, k = 7, n = 3;
    cout << i + j * k - k % n << "\, ";
    cout << i/n << endl;
    return 0;
}
```

Please choose one the correct answer from the following options.

- a.) 45, 1
- b.) 46, 1
- c.) 1, 1
- d.) None of the following.

26.)What is the output when the following code fragment is executed?

```
#include<iostream>
using namespace std;

void f();
int x = 9;

int main()
{
    cout << x << endl;
    f();
    cout << x << endl;
}

void f()
{
    x = 8;
}
```

Please choose one of the correct answer.

- a.) 9, 8
- b.) 9, 9
- c.) 8, 9
- d.) None of the following

27.) This following code is about Bubble sort.

```
#include <iostream>
using namespace std;

int main()
{
    int array[5];
    cout << "enter 5 number randomly " << endl;
    for(int i = 0; i < 5; i++)
    {
        cin >> array[i];
    }
    cout << endl;
    cout << "input array is: " << endl;
    for(int j=0; j <5; j++)
    {
        cout << "\t\t\tValue at " << j << "   Index: " <<
        array[j] << endl;
    }
    cout << endl;
    int temp;
    for(int i2 = 0; i2 <= 4; i2++)
    {
        for (int j = 0; j < 4; j++)
        {
            if(array[j] > array [j+1])
            {
                temp = array[j];
                array[j] = array[j+1];
                array[j+1]= temp;
            }
        }
    }
    cout << "   Sorted Array is: " << endl;
    for(int i3 = 0; i3 < 5; i3++)
    {
        cout << "\t\t\tValue at " << i3 <<"   Index: "<<
        array[i3] <<endl;
    }
}
```

```
    }  
    return 0;  
}
```

Please give the input

-2
45
0
11
-9

What is the output would you expected? Please choose from one of the following

a.) enter 5 number randomly

-2
45
0
11
-9

input array is:

| | |
|------------|-----------|
| Value at 0 | Index: -2 |
| Value at 1 | Index: 45 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: -9 |

Sorted Array is:

| | |
|------------|-----------|
| Value at 0 | Index: -9 |
| Value at 1 | Index: -2 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: 45 |

b.) enter 5 number randomly

-2
45
0
11
-9

input array is:

| | |
|------------|------------|
| Value at 0 | Index: -45 |
| Value at 1 | Index: -2 |
| Value at 2 | Index: 11 |
| Value at 3 | Index: 0 |
| Value at 4 | Index: -9 |

Sorted Array is:

| | |
|------------|-----------|
| Value at 0 | Index: -9 |
| Value at 1 | Index: -2 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: 45 |

c.) enter 5 number randomly

-2
45
0
11
-9

input array is:

| | |
|------------|-----------|
| Value at 0 | Index: -2 |
| Value at 1 | Index: 45 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: -9 |

Sorted Array is:

| | |
|------------|------------|
| Value at 0 | Index: -2 |
| Value at 1 | Index: -45 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: -9 |

d.) enter 5 number randomly

-2
45
0
11
-9

input array is:

| | |
|------------|-----------|
| Value at 0 | Index: -2 |
| Value at 1 | Index: 45 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: -9 |

Sorted Array is:

| | |
|------------|-----------|
| Value at 0 | Index: -2 |
| Value at 1 | Index: -9 |
| Value at 2 | Index: 0 |
| Value at 3 | Index: 11 |
| Value at 4 | Index: 45 |

28.)What is the output of the following code?

```
#include <iostream>
using namespace std;

int operate (int a, int b)
{
    return (a * b);
}

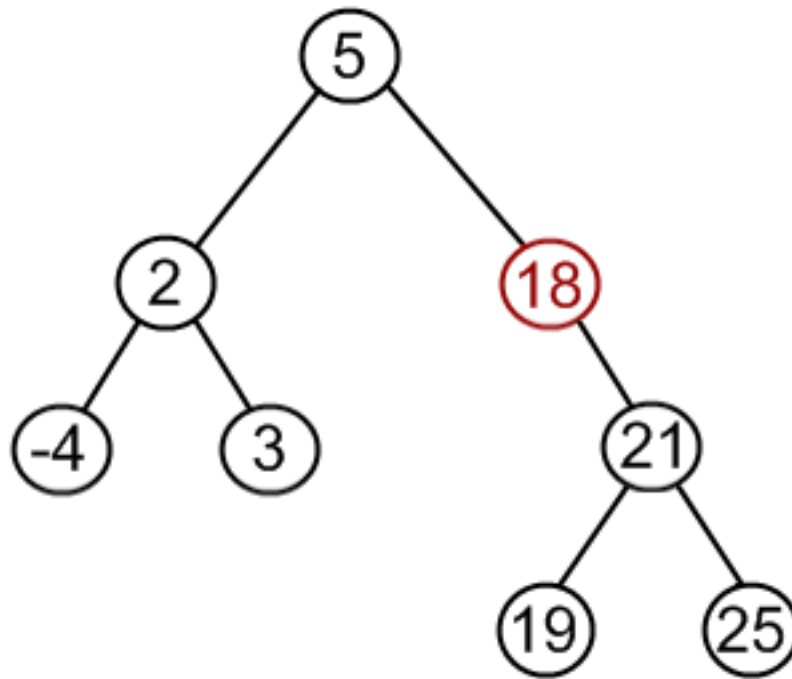
float operate (float a, float b)
{
    return (a/b);
}

int main()
{
    int x=5, y=2;
    float n=5.0, m=2.0;
    cout << operate(x,y) <<"\t";
    cout << operate (n,m);
    return 0;
}
```

Please choose one of the following the correct answer.

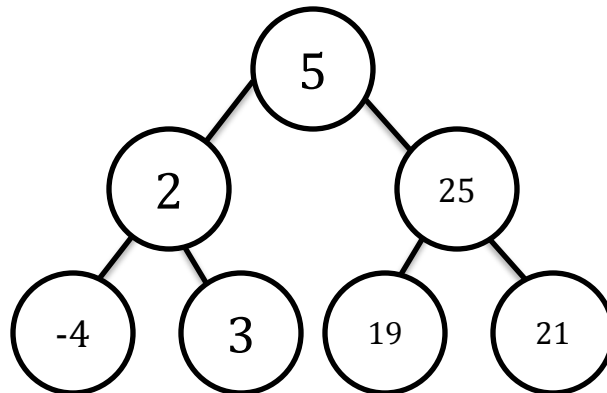
- | | | | |
|----------|-----|----------|-----|
| a.) 10.0 | 5.0 | c.) 10.0 | 5 |
| b.) 5.0 | 2.5 | d.) 10 | 2.5 |

29.) This question is about deleting the node

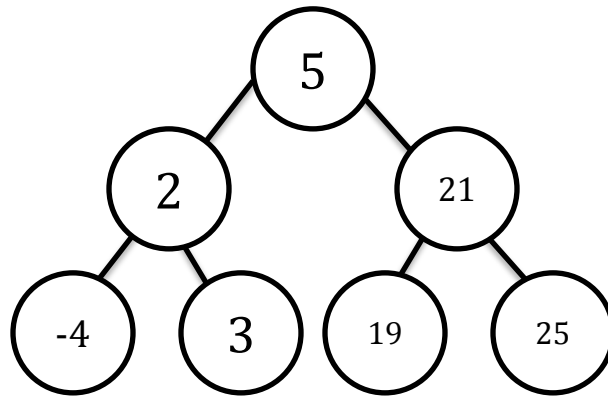


What is the output expected if "18" deleted?

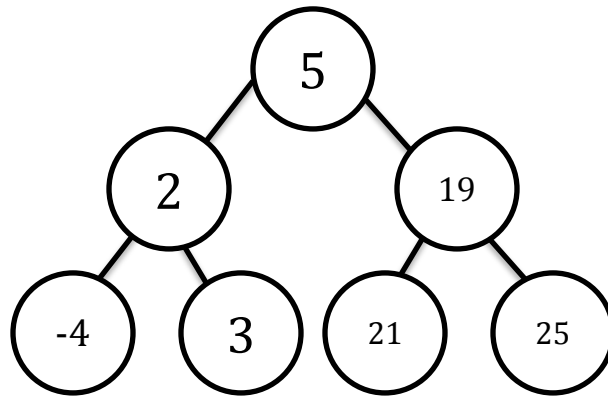
a.)



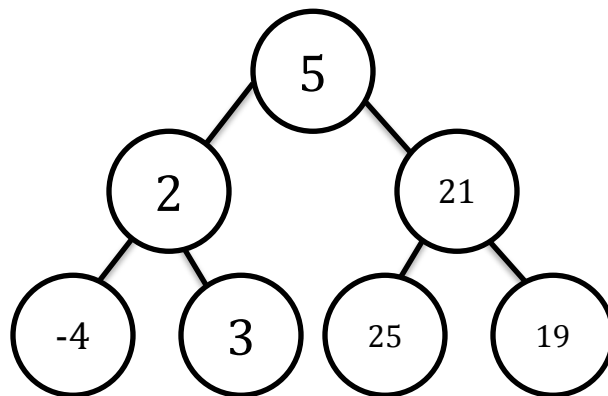
b.)



c.)



d.)



30.)The time required in the best case for search operation in binary tree is

- a.) $O(n)$
- b.) $O(\log n)$
- c.) $O(2n)$
- d.) $O(\log 2n)$

31.) Which of the following statement hold true for binary trees?

- a.) The left subtree of a node contains only nodes with keys less than the node's key
- b.)The right subtree of node contains only node's with keys greater than the node's key
- c.)Both a and b above
- d.)None left and right subtree nodes contains only nodes with keys less than the node's key

32.)Which of the following statements hold true for binary trees?

- a.) Nodes
- b.) Data
- c.) Both a and b above
- d.) Address

33.)Which of the following type of class allows only one object of it to be created?

- a.) Virtual class
- b.) Abstract class
- c.) Singleton class
- d.) Friend class

34.) Which of the following statement is correct?

- a.) A constructor is called at the time of declaration of an object
- b.) A constructor is called at the time of use of an object
- c.) A constructor is called at the time of declaration of a class
- d.) A constructor is called at the time of use of a class

35.)Which of the following approach is adapted by C++?

- a.) Top-down
- b.) Bottom-up
- c.) Right-left
- d.) Left-right