Capgemini placement preparation questions

With the given information provided find out the address of Arr[17] in a 1 –D array Arr[30]

lower bound = 1
starting base address = 1100
size of each element is 2

A) 1132
B) 1070
C) 1128
D) 1068
E) 1134

Consider the following sequence of operations on an empty stack.

Push(54); push(52); pop(); push(55); push(62); s = pop();

Consider the following sequence of operations on an empty queue.

enqueue(21); enqueue(24); dequeue(); enqueue(28); enqueue(32);

q = dequeue();

The value of s + q is _____

A) 86
B) 68
C) 24
D) 94

What is the second part of the node in a linked list that contains the address of the next node called?

a) Data
b) Pointer
c) Element
d) Link

Which operation on a stack has O(1) time complexity?

A) Searching an element

B) Inserting (PUSH)

C) Deleting middle element

D) Traversing

In a binary search tree (BST), the time complexity of search in average case is:

A) O(n)

B) O(log n)

C) O(n log n)

D) O(1)

In a circular queue of size n, the condition for overflow is:

A) front = rear
B) (rear + 1) % n = front
C) rear = n
D) rear = front - 1

Which SQL clause is used to rename a column in the result?

A) RENAME

B) UPDATE

C) CHANGE

D) AS

This is the formula of ?

Fn = Fn-1+Fn-2

A. Prime number
B. Euler number
C. Armstrong Number
D. Fibonacci Series

Which of the following operations is not O(1) for an array of sorted data. You may assume that array elements are distinct.

A) find the largest item
B) delete an element
C) find the smallest element
d) all of the above

What will be the output of the following code ?

```
int main()
{
int a = 10;
int b = 7;
printf(“%d” , a & b && b + 1 ||0 );
return 0;
}
```

Q. What will be the output of the following code ?

```
procedure Test()
    // Initialize variables
    i = 0
    j = 0
    t = true
    r = false
        // Evaluate expressions
    r = (t & 0 < (i += 1))
    r = (t && 0 < (i += 2))
    r = (t | 0 < (j += 1))
    r = (t || 0 < (j += 1))
    // Output values of i and j
    output i, "    ", j
end procedure
// Call the Test procedure to execute the program
Test()
```

Q. What will be the output of the following code ?

```
#include <iostream>
using namespace std;
int main() {
    int num = 5;
    cout << (~num +1) << endl;
    return 0;
}
```

What will be the output of the following code ?

```
integer x, y, z, a
set x = 2, y = 1, z = 5
a = (x AND y) OR ( z + 1)
Print a
```

What will be the output of the following code for n = 128 ?

```
int function(unsigned n)
{
        if (!isPowerOfTwo(n))
                return -1;

        unsigned i = 1, pos = 1;
        while (!(i & n)) {
                i = i << 1;
                ++pos;
        }

        return pos;
}
```

Which of the following is an infix expression?

a) (a + b) * (c + d)
b) ab + c *
c) +ab
d) abc+*

The result evaluating the postfix expression 10 5 + 60 6 / *8 - is

A. 284

B. 213

C. 142

D. 71

What will be the output of the following code?

```
#include <stdio.h>
int main()
{
    static int i = 5;
    if ( --i ) {
        printf("%d ", i);
        main();
    }
}
```

Which data structure is used for implementing Breadth-First Traversal (BFS)?

a) Stack

b) Queue

c) Linked List

d) Tree

Which of the following type of database language have SQL statements such GRANT and REVOKE?

a. DML

b. DQL

c. DCL

d. TCL

Which of the following real world scenarios would you select with a stack data structure?

A. Pilling 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. Ticket booking in IRCTC

Q. What will be the output of the following code ?

```
int main() {
    int x = 0;
    if(1 | (x = 1))
        printf("x is %d", x);
    else
        printf("%d", x);
    return 0;
}
```

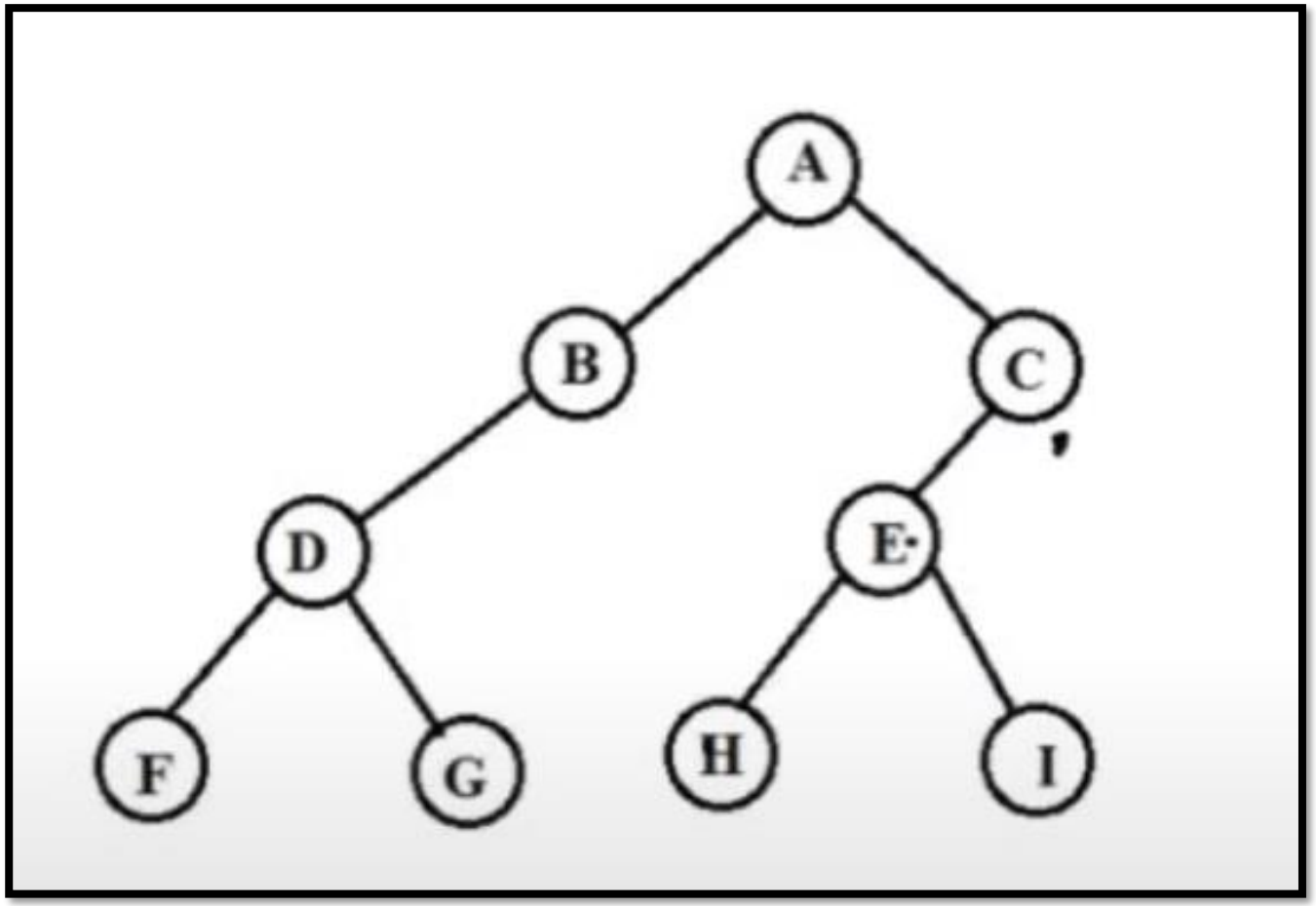
Q. What will be the output of the following code for input n = 15?

```
int fun(int n)
{
int count = 0;
while(n){
        count+=n&1;
        n>>=1;
}
return count;
}
```

Following is a C like pseudo code of a function that takes a number as an argument, and uses a stack S to do processing, value for n is 4

```
void fun(int n)
{
Stack S; // say it creates an empty stack S
While(n>0)
{
        // this line pushes the value of n%2 to stack S
        push(&S, n%2);
        n = n/2;
}
// run while Stack S is not empty
while (!isEmpty(&S))
        printf("%d",pop(&S)); // pop an element from S and print it
}
```

Q. What is the correct post-order traversal of the given rooted tree?



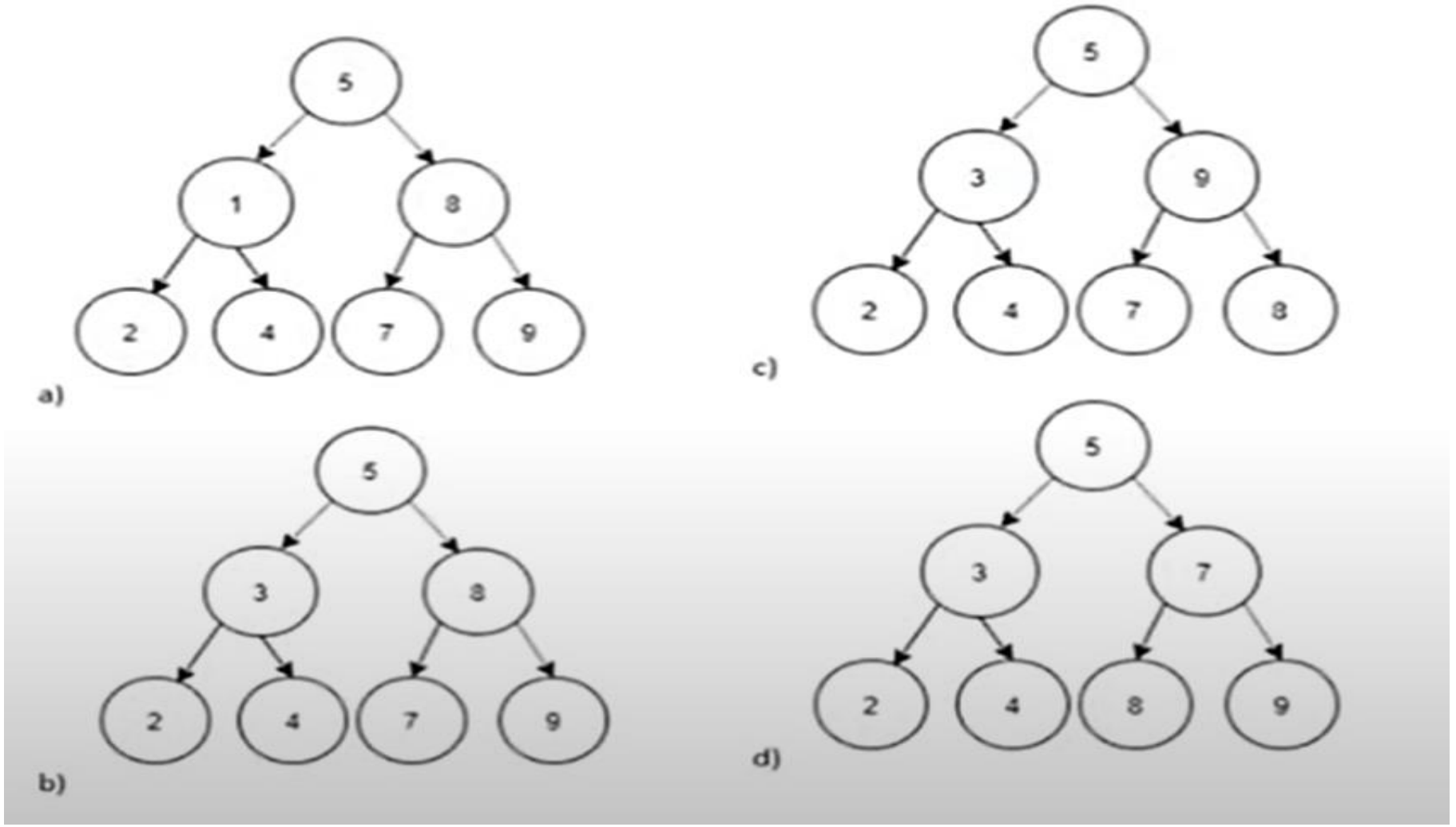
Q. In an empty BST, insert the following elements in a similar sequence.

Which element will be at the lowest level

105,95,122,99,97,120

Q. Construct a binary search tree by using postorder sequence given below

postorder : 2,4,3,7,9,8,5



Find out the maximum number of nodes present in a tree of height 6

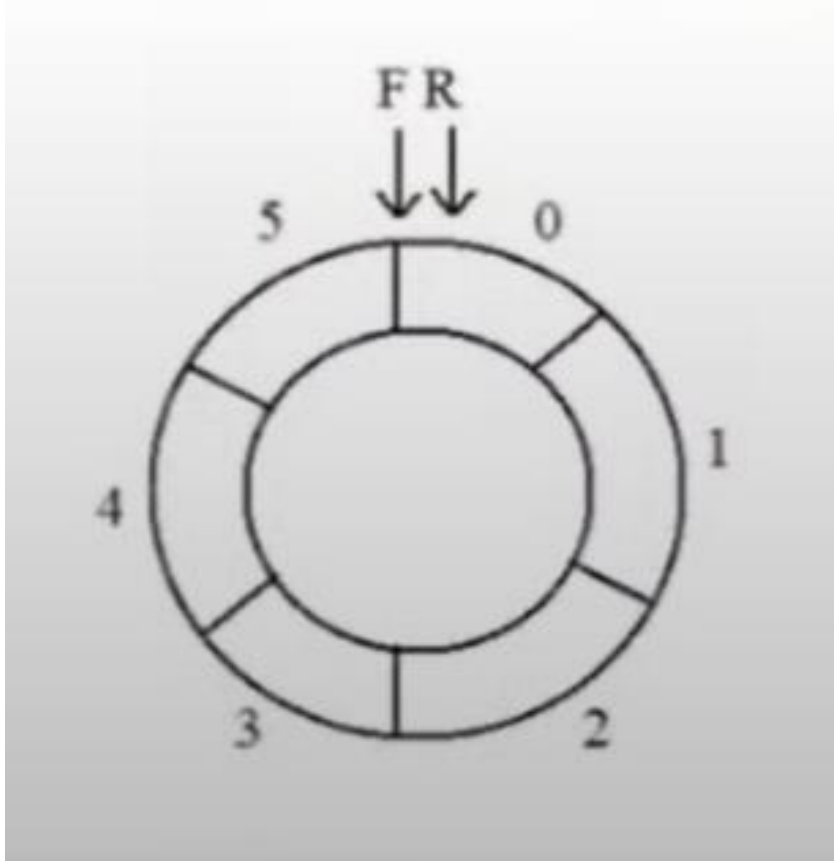
A. 31
B. 63
C. 64
D. 32

Q. What will be the output of the following code ?

```
void myfun() {
        stack<int> s
        s.push(1);
        s.push(2);
        s.push(3)
        for(int i = 1; i<=3;i++) {
                cout<<s.top();
                s.pop();
        }
}
```

Q. Consider a circular queue, which can hold maximum of six elements. Initially, the queue is empty as shown in the image. Follow the steps provided and find out the values present and on which index

1. Insert 11 to the circular queue
2. Insert new element 22,33,44 and 55 into the circular queue
3. Delete an element
4. Delete another element



In order traversal of binary search will make ?

a) Unsorted list
b) Reverse of input
c) Sorted list
d) None of the above

Consider a binary Tree consisting of 5 nodes, the level order traversal of the tree is P Q R S T , which of the following node can be the child of Q

A. T
B. S
C. All of these
D. R

Consider a stack S. The value of x is 20.

S= 4,9,5,1,_,_,_,_.

The following operations are performed on stack S

1. Push(S,3) // push value 3 inside the stack S
2. Pop (S, item) // item = top most element
3. x = x + item
4. Pop(s, item)
5. Pop(s, item)
6. x= x*item
7. x = x-item

What is the final value of x?

If the elements ‘1’,’2’,’3’ and ‘4’ are inserted in a queue, what would be the order for the removal ?

A. 1234
B. 4321
C. 3241
D. None of the above

Application and services that run on a distributed network using virtualized resources is known as

a) Parallel computing
b) Soft computing
c) Distributed computing
d) Cloud computing

Which one of the following statements possibly contains the error?

a) Select * from emp where empid = 234;
b) Select empid from emp where empid = 678;
c) Select empid where empid = 67 and lastname = “kumar”;
d) Select empid from emp;

If all devices are connected to a central hub then topology is called

a) Bus Topology
b) Ring Topology
c) Star Topology
d) Tree Topology

Cloud computing is a kind of abstraction which is based on the notion of combining physical resources and represents them as _____resources to users.

a) Real
b) Cloud
c) Virtual
d) none of the mentioned

Which one of the following provides the resources or services such as the virtual infrastructure, virtual machines, virtual storage, and several other hardware assets?

a) IaaS
b) SaaS
c) PaaS
d) All of the mentioned

What is the time complexity of to insert a node on position in a priority queue?

A) O(logn)

B) O(n)

C) O(n logn)

D) O(1)