mettl

Assessment for Campus Hiring - CPP

Total 00:12:54 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 1 of 30 > All 28 2

Question # 1 Revisit

Identify the output of the following code considering the following definitions for three classes namely A, B, and C in C++.

Code:

```
C c;
cout << c.func();
```

Class definitions:

```
class A {
  public:
  virtual int func() {
    return 0;
  }
};

class B: public A{
  int func() {
    return 1;
  }
};

class C: public B {
};
```

Choose the best option

- 0
- 1
- Error: 'func' is a private member of 'B'
- Garbage value

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:54 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 1 of 30 > All 28 2

Question # 1 Revisit

Identify the output of the following code considering the following definitions for three classes namely A, B, and C in C++.

Code:

```
C c;
cout << c.func();
```

Class definitions:

```
class A {
  public:
  virtual int func() {
    return 0;
  }
};

class B: public A{
  int func() {
    return 1;
  }
};

class C: public B {
};
```

Choose the best option

- 0
- 1
- Error: 'func' is a private member of 'B'
- Garbage value

Clear Response

Question # 2 Revisit

Identify the output of the following code snippet

```
1  class A {
2    public:
3    ~A() {
4      cout << "Killed A" << endl;
5    }
6    virtual int func() {
7      return 0;
8    }
9  };
10
11 int main() {
12   A a;
13   cout << a.func() << endl;
14   return 0;
15 }
```

Choose the best option

- 0
- Killed A
  0
- 0
  Killed A
- Killed A

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:46 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 3 of 30 > All 28 2

Question # 3 Revisit

Identify the output of the following code snippet containing the switch control statement in C++.

```
switch(10) {
  case 10:
    cout << "1" << endl;
    break;
  case 10:
    cout << "2" << endl;
}
```

Choose the best option

- (•) 1
- ( ) 1
  2
- ( ) 2
- ( ) Error: Duplicate case value

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:45 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 4 of 30 > All 28 2

Question # 4 Revisit

Assuming that a program declares a Long Integer type variable named amtSold, a Float variable named bonus, and a Float variable named bonusRate. Which of the following options is the correct equation to calculate a salesperson's bonus?

Choose the best option

```
1 bonus = (float) amtSold * bonusRate;
```

```
1 (float) bonus = (float) amtSold * (float) bonusRate;
```

```
1 (long) bonus = amtSold * (long) bunusRate;
```

```
1 bonus = amtSold * (float) bonusRate;
```

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:44 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 5 of 30 > All 28 2

Question # 5 Revisit

What is the size of union test t in C++ ?

```
union  test {
  int a;
  float b;
  long d;
  char c;
}
union test t;
```

Choose the best option

- 11.0
- 10.0
- 15.0
- None of the given options

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:43 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 6 of 30 > All 28 2

Question # 6 Revisit

What is the size of object stdnt (in bytes)?

```
1 struct student {
2   short  roll_no;
3   char name[20];
4   unsigned int marks[5];
5   long float avg;
6 };
7 student stdnt;
```

Choose the best option

- (●) 42.0
- ( ) 38.0
- ( ) 36.0
- ( ) 40.0

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:42 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 7 of 30 > All 28 2

Question # 7 Revisit

A C++ program contains the following declaration, what would be the value of the expression abs (i - 2*j)?

```
1 int i = 8, j = 5;
2 abs (i - 2*j);
```

Choose the best option

- (•) 2
- ( ) 6
- ( ) -2
- ( ) Compilation error

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:40 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 8 of 30 > All 28 2

Question # 8 Revisit

What is the size of the newstack object (in bytes) in C++?

```
1 class stack {
2   int size;
3   int val;
4   int *top;
5   public:
6   void push(int x);
7   int pop();
8 }newstack;
```

Choose the best option

- (●) 6.0
- ( ) 4.0
- ( ) 10.0
- ( ) It depends on system's memory architecture

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:39 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 9 of 30 > All 28 2

Question # 9 Revisit

Identify the output of the following program in C++.

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

int main() {
  int a = 10;
  int const &b = a;
  a = 12;
  a+6;
  cout<<a;
  cout<<b;
  return 0;
}
```

Choose the best option

- 1818
- 1010
- 1212
- Compilation error

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:38 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 10 of 30 > All 28 2

Question # 10 Revisit

What does the following seek call signify in C++ ?

```
1 fout.seekg(m,ios::cur)
```

(here 'fout' is an 'ofstream' object)

Choose the best option

- (●) Goes forward by m bytes from the current position
- ( ) Goes backward by m bytes from the current position
- ( ) Goes to the current position of file pointer
- ( ) None of the given options

Clear Response

Question # 11 Revisit

What does the following seek call signify in C++ ?

```
1 fout.seekg(m,ios::beg)
```

(here 'fout' is an 'ofstream' object)

Choose the best option

- Move to m^{th} byte in the file
- Move to $(m+1)^{th}$ byte in the file
- Go to the starting position in the file
- None of the given options

Clear Response

Question # 12 Revisit

What will be the output of the following C++ program?

```
#include <iostream>
using namespace std;
int calculate (int i, int j){
    return (i * j);
}
float calculate (float i, float j){
    return (i/j);
}
int main(){
    int x=5, y=2;
    float n=5.0, m=2.0;
    cout << calculate(x,y) <<"\t";
    cout << calculate (n,m);
    return 0;
}
```

Choose the best option

- 10.0 5.0
- 5.0 2.5
- 10.0 5
- 10 2.5

Clear Response

Question # 13 Revisit

In the following case in C++, if add is the name of a function, then is it legal to declare it as shown below?

```
1 int add(int a=2, int b, int c=5);
```

Choose the best option

- (•) Legal
- ( ) Illegal
- ( ) Depends upon the call of the function

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:34 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 14 of 30 > All 28 2

Question # 14 Revisit

What will be the output of the following code in C++?

```
#include <iostream>
using namespace std;
void interchange(int *x1,int *y1){
  int z1;
  z1=*x1;
  *x1=*y1;
  *y1=z1;
  cout<<"*x= "<<x1;
  cout<<" *y= "<<y1;
}
int main(){
  int x=50, y=70;
  interchange(&x,&y);
  cout<<" x= "<<x;
  cout<<" y= "<<y;
  return 0;
}
```

Choose the best option

- (●) *x= (address of x) *y=(address of y) x= 70 y= 50
- ( ) *x=70 *y=50 x=50 y=70
- ( ) *x=50 *y=70 x=70 y=50
- ( ) *x=50 *y=70 x=50 y=70
- ( ) Error: 'interchange' was not declared in this scope

Clear Response

Question # 15 Revisit

What will be the output of the following code in C++?

```
#include<iostream>
using namespace std;
add(int a, int b){
  return a+b;
}
int main(){
  cout<<add(5,10);
  return 0;
}
```

Choose the best option

- (●) 15
- ( ) Blank screen
- ( ) Compiler error: ISO C++ forbids declaration of 'add' with no type [-fpermissive]
- ( ) Runtime error

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:32 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 16 of 30 > All 28 2

Question # 16 Revisit

What will be the output of the following code in C++?

```
#include<iostream>
using namespace std;
float interest(int p, float r = 2.5, int t){
  return (p*r*t)/100;
}
int main(){
  float i = interest(100, 10, 5);
  cout<<"Interest  : "<<i;
  return 0;
}
```

Choose the best option

- (●) Interest : 50
- ( ) Interest : 12.5
- ( ) Runtime error
- ( ) Compiler error

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:31 Finish Test

Section 2 of 2 C++

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 < 17 of 30 > All 28 2

Question # 17 Revisit

What will be the output of the following code in C++ ?

```
#include <iostream>
#include <algorithm>
#include <iterator>
struct g
{
  g():n(0){}
  int operator()() { return n++; }
  int n;
};
int main()
{
  int a[10];
  std::generate(a, a+10, g());
  std::copy(a, a+10, std::ostream_iterator<int>(std::cout, " "));\
    return 0;
}
```

Choose the best option

- Undefined behavior
- Compile time error
- Runtime error
- 0 1 2 3 4 5 6 7 8 9

Clear Response

Question # 18 Revisit

Fill in the blank.

In C++,

```
1 class Abc : public A, private B {
2 };
```

is an example of _____.

Choose the best option

- (•) Multiple inheritance
- ( ) Multi-level inheritance
- ( ) Multi-path inheritance
- ( ) Hybrid inheritance

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:26 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 19 of 30 > All 28 2

Question # 19 Revisit

In C++, which class should be made virtual base class in order to avoid duplication amongst the following class declaration?

```
1 class A {...};
2 class B1:public A {...};
3 class B2:public A {...};
4 class C:public B1,public B2 {...};
```

Choose the best option

- (•) Class A
- ( ) Class B1
- ( ) Class B2
- ( ) None of the given options

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:25 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 20 of 30 > All 28 2

Question # 20 Revisit

There are two codes in C++ out of which the first one corresponds to strategy design pattern and the second one corresponds to inheritance. Both the codes can be used in either of the ways as they are fulfilling the same task. Which of the following statements about this is/are true?

A. When the situation is simple and static like total use cases will be less, it is best practice to use inheritance over strategy design pattern.

B. In cases of multiple logic reuse, strategy pattern is considered better than inheritance due to its dynamic polymorphism and less implementation limitation like multi-class inheritance.

C. Strategy design pattern used to have same implementation which cannot be changed during run time. So, it can be used in scenarios where you have to deal with static code reuse.

Codes:

```
interface class A
{
void Action();
}
class B: A
{
void Action()
{
// define logic
}
}
```

```
class A
{
virtual void Action() = 0;
}
class B: public A
{
virtual void Action()
{
// define logic
}
}
```

Choose the best option

- (•) Only B
- ( ) A and B
- ( ) B and C
- ( ) A, B and C

Clear Response

Question # 21 Revisit

Following are definitions of two classes namely A and B. What will be the output of the given code in C++ ?

Code:
B bInstance(2);

Class definitions:

```
1  class A {
2    private:
3    int val;
4    public:
5    A(int i):val(i) {cout << "Base class constructor\n";}
6
7  };
8
9  class B : protected A
10 {
11     public:
12     B(int i):A(i){
13         cout << "Derived class constructor\n";
14     }
15 };
```

Choose the best option

- ○ Base class constructor
- ◉ Base class constructor
  Derived class constructor
- ○ Derived class constructor
  Base class constructor
- ○ Derived class constructor

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:20 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 22 of 30 > All 28 2

Question # 22 Revisit

Identify the output of the following program in C++.

```
#include<iostream>
using namespace std;
class XYZ{
  public:
  int x;
  static int y;
  XYZ(int a,int b){
    x = a;
    y = b;
  }
  void display(){
    cout<<"x:"<<x<<";";
    cout<<"y:"<<y<<"\n";
  }
};

int XYZ::y;
int main(){
  XYZ xyz(1,2),xyz1(5,6);
  xyz.display();
  xyz1.display();
  xyz.x += 4;
  xyz.y += 4;
  xyz1.x += 4;
  xyz1.y += 4;
  xyz.display();
  xyz1.display();
  return 0;
}
```

Choose the best option

- x:1;y:2
  x:5;y:6
  x:5;y:6
  x:9;y:10
- (●) x:1;y:6
  x:5;y:6
  x:5;y:14
  x:9;y:14
- Compiler error
- Runtime error

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:18 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 23 of 30 > All 28 2

Question # 23 Revisit

Identify the output of the following program in C++.

```
#include <iostream.h>
void main() {
  cout<<(int i = 5)<<"\t"<<(int j = 9);
}
```

Choose the best option

- (•) 5 9
- ( ) Compiler error
- ( ) Runtime error
- ( ) Blank screen

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:18 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 24 of 30 > All 28 2

Question # 24 Revisit

Which of the following statements in C++ is equivalent to 5 times 2?

Choose the best option

- 1 5 << 1
- 1 1>>5
- 1 2>>1
- 1 5<<2
- 1 2>>5

Clear Response

Question # 21 Revisit

Following are definitions of two classes namely A and B. What will be the output of the given code in C++ ?

Code:
B bInstance(2);

Class definitions:

```
1  class A {
2    private:
3    int val;
4    public:
5    A(int i):val(i) {cout << "Base class constructor\n";}
6
7  };
8
9  class B : protected A
10 {
11     public:
12     B(int i):A(i){
13         cout << "Derived class constructor\n";
14     }
15 };
```

Choose the best option

- Base class constructor
- Base class constructor
  Derived class constructor
- Derived class constructor
  Base class constructor
- Derived class constructor

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:15 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 25 of 30 > All 28 2

Question # 25 Revisit

Identify the output of the following program in C++.

```
#include<stdio.h>
int main() {
  int x = 3;
  printf("%d %d %d",x, x++, x++);
  return 0;
}
```

Choose the best option

- 5 4 3
- 3 3 4
- 3 4 5
- 4 5 6
- None of the given options

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:14 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 26 of 30 > All 28 2

Question # 26 Revisit

What is the output of the following program in C++ ?

```
# include<iostream.h>
void main(void)
{
  int i = 3;
  int j = i<<2;
  int x = i * j;
  cout<<i<<" * "<<j<<" = "<<x;
}
```

Choose the best option

- 3 * 9 = 27
- 3 * 12 = 36
- Compiler Error
- Run-time Error
- None of the above

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:13 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 27 of 30 > All 28 2

Question # 27 Revisit

Identify the output of the following code in C++.

```
#include<iostream>
using namespace std;
int main(){
  int a=10,b=20,c;
  c=a>2+b!=6;
  cout<<c;
  return 0;
}
```

Choose the best option

- 20
- 1
- 10
- None of the given options

Clear Response

Question # 28 Revisit

Identify the output of the following code snippet in C++.

```
#include<iostream>
using namespace std;
int main(){
  int *p = new int(20);
  delete p;
  delete p;
  return 0;
}
```

Choose the best option

- Works fine
- Compiler error
- Runtime error
- Cannot say

Clear Response

Question # 29 Revisit

Identify the output of the following code snippet in C++.

```
#include<iostream>
using namespace std;
int operation (int i, int j, int (*pf)(int,int)){
    int k;
    k = (*pf)(i,j);
    return k;
}
int addition (int a, int b){
    return a+b;
}
int division (int a, int b){
    return a/b;
}
int main(){
    int m = operation (10, 5, addition);
    int n = operation (10, 5, division);
    cout << "m = " << m << endl;
    cout << "n = " << n << endl;
    return 0;
}
```

Choose the best option

- (●) m = 15
  n = 2
- ( ) Compiler error
- ( ) Run time error
- ( ) m = 15
  n =12

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:10 Finish Test

Section 2 of 2 C++

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 < 30 of 30 > All 28 2

Question # 30 Revisit

What will be the values of x and y for the object 'a' after the execution of the statement 'abc a(2,3.5)' in the given code?

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

class abc{
  int x;
  float y;
  public:
  abc(int a,float b=5.0){
    x=a;
    y=b;
  }
};

int main()
{
  abc a(2,3.5);
  return 0;
}
```

Choose the best option

- a=2; b=5.0
- a=2; b=3.5
- Will generate an error
- a=2; b is some random number

Clear Response

mettl

Assessment for Campus Hiring - CPP

Total 00:12:00 Finish Test

Section 1 of 2 Hands On Pr

1 < 1 of 1 > All 1

Question # 1 Revisit

How to attempt?

Question :

Charles and the Necklace

Charles wants to buy a necklace in which:

1. There is a minimum of 1 pearl and maximum of X pearls, such that each pearl has its own magnificent coefficient.
2. The pearls should be in non-decreasing order of their magnificence power.

You are given the maximum number of pearls in a necklace and the range of the magnificent coefficients of the pearls. Find the number of necklaces that can be made that follow the mentioned conditions.

Input Specification:

input1: Maximum number of pearls that can be used to form the necklace
input2: Starting magnificent coefficient of pearls
input3: Ending magnificent coefficient of pearls

Output Specification:

Return the number of necklace options possible as per given conditions.

Example 1:

input1: 1
input2: 4
input3: 5

Output: 2

Explanation:
Necklace can be formed using one pearl of either magnificence coefficient 4 or magnificence coefficient 5, hence total number of perfect necklaces are 2.

Example 2:

Language: C++ Compiler : g++ 5.4.0 Reset

```
1  // #include<stdio.h>
2  // #include<string.h>
3  #include<iostream>
4  #include<bits/stdc++.h>
5  using namespace std;
6  // Read only region start
7
8  int find_Sol(int input1,int input2,int input3)
9  {
10     // Read only region end
11     int k = input3-input2+1;
12     int len = input1;
13     vector<vector<int> > answer(len, vector<int> (k,0));
14     int sol =0;
15
16     for(int i=0; i<len; i++)
17         answer[i][0] = 1;
18
19     for(int i=1; i<answer[0].size();i++)
20         answer[0][i] = 1;
21
22     for(int i =1; i< answer[0].size();i++)
23         answer[0][i] = answer[0][i-1] +1;
24
25
26     sol = answer[0][k-1];
27
28     for(int i=1; i<len; i++){
29         for(int j=1; j<answer[0].size();j++){
30             answer[i][j] = answer[i-1][j]+answer[i][j-1];
31         }
32         sol += answer[i][k-1];
33     }
34     return sol;
35     // Write code and remove the below exception.
36     // throw "Function find_Sol(int input1,int input2,int input3) not implemented. ";
```

Code Results Your Testcase Compile & Test

Console Output : -

mettl

Assessment for Campus Hiring - CPP

Total 00:11:56 Finish Test

Section 1 of 2 Hands On Pr

1 < 1 of 1 > All 1

Input Specification:

input1: Maximum number of pearls that can be used to form the necklace
input2: Starting magnificent coefficient of pearls
input3: Ending magnificent coefficient of pearls

Output Specification:

Return the number of necklace options possible as per given conditions.

Example 1:

input1: 1
input2: 4
input3: 5

Output: 2

Explanation:
Necklace can be formed using one pearl of either magnificence coefficient 4 or magnificence coefficient 5, hence total number of perfect necklaces are 2.

Example 2:

input1: 2
input2: 8
input3: 9

Output: 5

Explanation:

Necklace can be formed using two pearls of either magnificence coefficients (8,8) or (8,9) or (9,9), or using one pearl of either magnificence coefficient 8 or 9, hence total number of perfect necklaces are 5.

////

Language: C++ Compiler : g++ 5.4.0 Reset

```
1  // #include<stdio.h>
2  // #include<string.h>
3  #include<iostream>
4  #include<bits/stdc++.h>
5  using namespace std;
6  // Read only region start
7
8  int find_Sol(int input1,int input2,int input3)
9  {
10     // Read only region end
11     int k = input3-input2+1;
12     int len = input1;
13     vector<vector<int> > answer(len, vector<int> (k,0));
14     int sol =0;
15
16     for(int i=0; i<len; i++)
17         answer[i][0] = 1;
18
19     for(int i=1; i<answer[0].size();i++)
20         answer[0][i] = 1;
21
22     for(int i =1; i< answer[0].size();i++)
23         answer[0][i] = answer[0][i-1] +1;
24
25
26     sol = answer[0][k-1];
27
28     for(int i=1; i<len; i++){
29         for(int j=1; j<answer[0].size();j++){
30             answer[i][j] = answer[i-1][j]+answer[i][j-1];
31         }
32         sol += answer[i][k-1];
33     }
34     return sol;
35     // Write code and remove the below exception.
36     // throw "Function find_Sol(int input1,int input2,int input3) not implemented. ";
```

Code Results Your Testcase Compile & Test

Console Output : -