Tintash Screening Test 2022

Time Allowed: 40 minutes

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Question 1:

```
class A {
   public:
      virtual void print() {
            cout << "My name is A";
      }
};
class B : public A {
      public:
      virtual void print() {
            cout << "My name is B";
      }
};
int main () {
  A* a = new B();
  a->print();
}
```

What will be the output of above code?

Answer:

- ○ My name is A
- ◉ My name is B
- ○ My name is B My name is A
- ○ Error/Invalid Code

Clear selection

Question 2:

```
class A {
   private:
      static int x;
   public:
      int increment(int y)
      {
            x += y;
            return x;
      }
};
int A::x = 0;
int main () {
      A *a1 = new A();
      A *a2 = new A();

      int z1 = a1->increment(3);
      int z2 = a2->increment(5);

      printf("%d","%d", z1, z2);
}
```

What will be the output of above code?

Answer:

- ○ 3,5
- ○ 0,0
- ◉ 3,8
- ○ None of the above

Clear selection

Question 3:

```
class A {
    private int x1;
    protected int x2;

    void fun1()
    {
        x1 = 3;
        x2 = 5;
    }
}

class B: public A {
    public int x3;

    void fun2()
    {
        x1 = 5;
        x2 = 7;
    }
}

class C {
    A *a;

    void fun3()
    {
        a = new A();
        a->x1 = 7;
        a->x2 = 9;
    }
}
```

Which of the above functions can access x1:

Answer:

- ○ fun1, fun2, fun3
- ○ fun1 and fun2
- ◉ only fun1
- ○ None

Clear selection

Question 4:

Referring to the code in question 3
Which of the above functions can access x2:

Answer:

- ○ fun1, fun2, fun3
- ◉ fun1 and fun2
- ○ only fun1
- ○ None

Clear selection

Question 5:

```
class A {
   public:
      A() {
            cout << "This is constructor of A";
      }
      ~A() {
            cout << "This is destructor of A";
      }
};
int main()
{
      A* a = new A();
      a = NULL;
      delete a;
}
```

What will be the output of above code?

Answer:

- ○ This is destructor of A
- ○ This is constructor of A This is destructor of A
- ○ No Output
- ○ None of the above

Question 6:

Which of the following can be defined using function overloading without any errors:

```
int add(int a, int b);
int add(float a, float b);
float add(float a, float b);
```

Answer:

- ○ 1 & 3
- ○ 1 & 2
- ○ 1, 2, and 3
- ○ a and b

Question 7:

```
class Base1 {
 public:
    Base1() {
      cout << " Base1";
    }
};

class Base2 {
 public:
    Base2() {
      cout << "Base2";
    }
};

class Derived: public Base1, public Base2 {
  public:
    Derived() {
      cout << "Derived";
    }
};

int main()
{
  Derived d;
  return 0;
}
```

What is the output of the following program?

Answer:

- ◯ Base2 Base1 Derived
- ◯ Base1 Base2 Derived
- ◯ Derived Base1 Base2
- ◯ Derived Base2 Base1

Question 8:

```
class Base1 {
 public:
    ~Base1()  {
      cout << " Base1";
    }
};

class Base2 {
 public:
    ~Base2()  {
       cout << " Base2";
    }
};

class Derived: public Base1, public Base2 {
  public:
    ~Derived()  {
      cout << " Derived";
    }
};

int main()
{
  Derived d;
  return 0;
}
```

Answer:

- ◯ Base2 Base1 Derived
- ◯ Base1 Base2 Derived
- ◯ Derived Base1 Base2
- ◯ Derived Base2 Base1

Question 9:

In a full binary tree if there are L leaves, then the total number of nodes N are? (A full binary tree is a binary tree in which every node other than the leaf nodes has two child nodes.)

Answer:

- ○ N = 2*L − 1
- ○ N = L + 1
- ○ N = L − 1
- ○ N = 2*L

Question 10:

In a Binary Search Tree of height h and n number of nodes, what is the worst time complexity for searching a node.

Answer:

- ○ O(h)
- ◉ O(n)
- ○ O(n+h)
- ○ O(logn)

Clear selection

Question 11:

Assuming that you have a pointer named 'head' that points to the first node of a singly linked list with node struct named 'Node'. Consider the initial state of list be "head->1->2->3->4->5->NULL" what will be the state of the linked list after executing the following code

```
Node* ptr = head;
while (ptr->data != 3) {
    ptr = ptr->next;
}
ptr->next = NULL;
```

Answer:

- ○ head->1->2->3->NULL->5
- ◉ head->1->2->3->NULL
- ○ head->1->2->NULL
- ○ Error

Clear selection

Question 12:

```
int *x = (int *) malloc(4);
*x = 255;
char *c = (char *) x;
cout << c[1];
```

What will be the output?

Answer:

- ○ 255
- ○ 0
- ○ cannot be determined
- ○ Invalid code

Question 13:

Consider that you have implemented classes for Stack and Queue for integers. What will the following function return:

```
int test() {
  Stack s;
  Queue q;
  s.push(1);
  s.push(3);
  s.push(2);
  q.enque(s.pop());
  q.enque(s.pop());
  q.enque(s.pop());
  s.push(q.deque());
  return s.pop();
}
```

Answer:

- ○ 1
- ◉ 2
- ○ 3
- ○ None

Clear selection

Question 14:

```
int Fib(n) {
      if (n == 0)
            return 0;
      elif (n==1)
            return 1;
      else
            return Fib(n-1) + Fib(n-2);
}

int main()
{
      Fib(5);
}
```

How many times is Fib(3) called in the above recursive program.

Answer:

- ○ 1
- ◉ 2
- ○ 3
- ○ 4

Clear selection

Question 15:

```
for (int x= 0; x < 10; x++)
if (x ==9)
x - -
cout << x
```

What will be the output of above program?

Answer:

- ○ 0 1 2 3 4 5 6 7 8 9
- ○ 0 1 2 3 4 5 6 7 8
- ○ 0 1 2 3 4 5 6 7 8 9 10
- ◉ None of the above

Clear selection

Question 16:

```
int main() {
  int i=0,x=0;

  for(i=1;i<10;i*=2) {
    x++;
    cout<<x;
  }
  cout<<x;

  return 0;
}
```

What should be the output?

Answer:

- ○ 1234567899
- ○ 123455
- ○ 12345678910
- ◉ 12344

Clear selection

Question 17:

```
void fun(int x) {
  if (x > 0) {
    x = x-1;
    fun(x);
    cout << x;
  }
}

int main() {
  fun(4);
}
```

What will be the output of above code?

Answer:

- ○ 3 2 1 0
- ◉ 0 1 2 3
- ○ 4 3 2 1 0
- ○ 0 1 2 3 4

Clear selection

Question 18:

What will be the output of:
(1102 % 1000) / 50

Answer:

- ◉ 2
- ○ 2.04
- ○ 0.04
- ○ None of the above

Clear selection

Question 19:

```
fun(int a) {
    a+= 5;
}

int main() {
    int a = 2;
    fun(a);
    cout << a;
}
```

What will be the output of the above code?

Answer:

- ○ 7
- ◉ 2
- ○ 5
- ○ None of the above

Clear selection

Question 20:

What will be the output of the following code:

```
int x = 10;
int y = 5;
cout << (y/x)*2;
```

Answer:

- ○ 1
- ○ 2
- ○ Syntax Error
- ◉ None of the above

Clear selection

Question 21:

What would be the angle between the hour and minute arm on an analog clock at 3:15 PM.

Answer:

- (●) 0 degrees
- ( ) 15 degrees
- ( ) 7.5 degrees
- ( ) 10 degrees

Clear selection

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