INGENIERÍA
EN AUTOMATIZACIÓN

4 + 1.25

Second Quiz Advanced Programming

November 10th, 2023

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Consider the following codes and note the outputs on the screen.

1. **(0.5 point)**

```
#include<stdio.h>
int main()
{
    int i=0;
    for(; i<=5; i++);
        printf("%d", i);
    return 0;
}
```

i=6

6

2. **(0.5 point)**

```
#include<stdio.h>
int main(){
    char cad[]="Prog Ava";
    int a = 5;
    printf(a >10 ? "C++\n":"%s\n", cad);
    return 0;}
```

Prog Ava

3. **(0.5 point)**

```
#include<stdio.h>
int main(){
    short int i = 0;
    for(i<=5 && i>=-1; ++i; i>0)
        printf("%u,", i);
    return 0;}
```

1, 2, 3, 4 ... se queda ciclado

4. **(0.5 point)**

```
#include<stdio.h>
int main(){
    float a = 0.7;
    if(0.7 > a)
        printf("Hi\n");
    else
        printf("Hello\n");
    return 0;}
```

Hello

Hi

5. **(0.5 point)**

```
#include<stdio.h>
int main()
{
    int k, num = 30;
    k = (num < 10) ? 100 : 200;
    printf("%d\n", num);
    return 0;
}
```

30

6. Which of the following definitions represents "member b of object pointed by a"? **(0.5 point)**

a) a->b
b) (*a)->b
c) b->a
d) (*a).b <este también

0.5

7. Relate the following columns and select the correct option **(0.5 point)**

1) *x	a) member y of object pointed by x
2) x->y	b) member y of object x
3) x[0]	c) pointer x
4) x.y	d) first object pointed by x

a) 3d, 1c, 2b, 4a,
b) 1c, 4b, 3d, 2a
c) 2b, 4a, 3b, 1c
d) 1d, 2c, 3b, 4a
e) None

8. In the next code, which is the screen output? **(0.5 point)**

```
class prueba{
private:
      int i;
public:
      int j;
      prueba(){
            i = 5; j = -2;
      }
};
void main(){
      prueba pr;
      cout << pr.i * pr.j;
}
```

No compila intentamos acceder a una variable privada

i es privada

Error

9. Which of the following is not correct for virtual function in C++ ? **(0.5 point)**

a) Must be declared in public section of class.
b) Virtual function can be static.
c) Virtual function should be accessed using pointers.
d) Virtual function is defined in base class.

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10. What is the output of the next code? (0.5 point)

```
struct Mueble {
        char Tipo[65]; // "Mesa"
        char Color[65]; // "Negro"
        int Horas; // 10
        int Costo; // 3000
        Mueble(char* p) {
                strcpy_s(Tipo, p);
                strcpy_s(Color, "Negro");
                Horas = 10; Costo = 3000;
        }
};

void main()
{
        Mueble m((char*)"Mesa");
        cout << *(m.Tipo+1) << *(m.Tipo + 3)
             << *(m.Tipo + 4);
}
```

11. What will be the final value of the member n and x after running the next program? (0.5 point)

```
class A {
public:
        int n = 0; int x;
        A() { n++; x += 2; };
        ~A() {
                n--; x += 2;}
};

int main() {
        A a; // n=1  x=2
        A* c = &a;
        a.x = 5; // x=5
        cout << a.x << endl;
        cout << (c->n = 3) << endl;
        cout << a.n << "       " << endl;
        return 0;
}
```

n = 2
x = 7

12. What is the final value of the member k after running the next code? (0.5 point)

```
class Bolsa {
public:
        int k = 0, l;

        Bolsa() { k = 5; l = 2; };
        ~Bolsa() {
            k = l; // k=4
            cout << k << endl;
        }
};

int main() {
        Bolsa *b = new Bolsa; // k=5  l=2
        b->l = 4; // l=4
        b->k = 5; // k=5
        cout << b->k << endl;
        delete b;
        return 0;
}
```

k = 4

13. What does the program output on screen? (0.5 point)

```
const char* X[] = { "Carros", "Juguetes",
        "Muebles", "Electro" };

int main() {
        cout << *X[2] << "  " << *(X+1)
             << "  " << *(X[2] + 3) << "  "
             << X[3] + 2 << endl;
        return 0;
}
```

M Juguetes b Electro

14. Indicate the line(s) number of the following code that represents an error. If you consider that there is no error, answer "None". (0.5 point)

```
1.  class Prueba {
2.  public:
3.      int n, x;
4.      Prueba() {};
5.      ~Prueba() {}};
6.  int main() {
7.      Prueba m;
8.      Prueba* o;
9.      cout << m.x << endl;
10.     cout << o->n << endl;
11.     return 0;}
```

Lineas: 10
Nunca se apunto la variable 'o'

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15. Indicate the line number of the following code that represents an error. If you consider that there is no error, answer "None". (0.5 point)

```
1.  class Linea {
2.  public:
3.      float a, b;
4.      Linea(int n, int m) {
5.              a = n / 3;
6.              b = m / 7;
7.      };
8.      ~Linea() {};
9.  class Cuadro : Linea {
10. public:
11.     float x, y;
12.     Cuadro(int k, int l) : Linea(k,l){};
13. int main() {
14.     Cuadro cuadro(11,13);
15.     cout << cuadro.a << endl;
16.     return 0;}
```

None

$\frac{11}{3} = 3.6666$

16. If the code in exercise 15 is correct, what is the value that is printed on the screen? This exercise is only valid if you answered exercise 15 correctly. (0.5 point)

3

3.6666

17. Constructors are used to (0.5 point)

a) To build a new class.
b) Free memory.
c) To create a derived class
d) Initialize an object members.
e) Initialize a function member

18. Destructor are used to (0.5 point)

a) Execute code for free memory
b) Execute code for destroy a class
c) Execute code for destroy a structure
d) Execute code for the end of the process.
e) None above

19. Indicate the line(s) number of the following code that represents an error. If you consider that there is no error, answer "None". (0.5 point)

```
1.  class M {
2.  protected:
3.     float a, b;
4.  public:
5.     M(float p, float q) {
6.             a = p; b = q;}
7.     M(){};
8.
9.  M operator +(M x, M y) {
10.    return { x.a + y.a, x.b + y.b }
11. }
12.
13. void main() {
14.    M a(1.5, 3.3), b(-0.77, -3.99);
15.    M r;
16.    r = a + b;
17.    cout << r.a << "\t" << r.b << endl;
18. }
```

Lineas con error
17, 9

20. If the code in exercise 19 is correct, what is the value that is printed on the screen? This exercise is only valid if you answered exercise 14 correctly. (0.5 point)

Its incorrect