Foundations & Data Structures With C++

Assignment 9 – Pointers

1. What is the output of this program?

```cpp
#include <iostream>
using namespace std;
int main()
{
    int arr[] = {4, 5, 6, 7};
    int *p = (arr + 1);
    cout << *arr + 9;
    return 0;
}
```

  a. 12
  b. 5
  c. 13
  d. error

2. What is the output of this program?

```cpp
#include <iostream>
using namespace std;
int main()
{
    char arr[20];
    int i;
    for(i = 0; i < 10; i++)
        *(arr + i) = 65 + i;
    *(arr + i) = '\0';
    cout << arr;
    return 0;
}
```

  a. ABCDEFGHIJ
  b. AAAAAAAAAA
  c. JJJJJJJJ
  d. none of the mentioned

3. What is the output of this program?

```cpp
#include <iostream>
using namespace std;
int main()
{
    char *ptr;
    char Str[] = "abcdefg";
    ptr = Str;
    ptr += 5;
    cout << ptr;
    return 0;
}
```

a. fg
b. cdef
c. defg
d. abcd

4. What is the output of this program?

```cpp
#include <iostream>
using namespace std;
int main ()
{
    int numbers[5];
    int * p;
    p = numbers; *p = 10;
    p++; *p = 20;
    p = &numbers[2]; *p = 30;
    p = numbers + 3; *p = 40;
    p = numbers; *(p+4) = 50;
    for (int n=0; n<5; n++)
        cout << numbers[n] << ", ";
    return 0;
}
```

5. What is the output of this program?

```cpp
#include<iostream>
using namespace std;
int main() {
    char st[] = "CodingNinjas";
    for(int i = 0; st[i] != '\0'; i++)
        cout << st[i] << *(st+i) << *(i+st) << i[st] <<
```

```
        endl;
        return 0;
    }
```

6. What is the output of this program?

```
#include <iostream>
using namespace std;
int main()
{
    float arr[5] = {12.5, 10.0, 13.5, 90.5, 0.5};
    float *ptr1 = &arr[0];
    float *ptr2 = ptr1 + 3;
    cout<<*ptr2<<endl;
    cout<< ptr2 - ptr1;
    return 0;
}
```

7. What is the output of this program?

```
#include<iostream>
using namespace std;
int main()
{
    int ***r, **q, *p, i=8;
    p = &i;
    q = &p;
    r = &q;
    cout<<*p<<**q<<***r<<endl;
    return 0;
}
```

8. What is the output of this program?

```
#include<iostream>
using namespace std;
void swap (char *x, char *y)
{
    char *t = x;
    x = y;
    y = t;
}
int main()
{
```

```
        char *x = "geeksquiz";
        char *y = "geeksforgeeks";
        char *t;
        swap(x, y);
        cout<<x<<y;
        t = x;
        x = y;
        y = t;
        cout<<endl<<x<<y;
        return 0;
    }
```

9. What is the output of this program?

```
#include <iostream>
using namespace std;
void Q(int z)
{
    z += x;
    cout<<z;
}
void P(int *y)
{
    int x = *y + 2;
    Q(x);
    *y = x - 1;
    cout<<x;
}
int main()
{
    int x = 5;
    P(&x);
    cout<<x;
    return 0;
}
```

10. What is the output of this program?

```
int f(int x, int *py, int **ppz)
{
    int y, z;
    **ppz += 1;
    z = **ppz;
    *py += 2;
```

```cpp
        y = *py;
        x += 3;
        return x + y + z;
}
int main()
{
        int c, *b, **a;
        c = 4;
        b = &c;
        a = &b;
        cout<<f(c, b, a);
        return 0;
}
```