National University of Computer and Emerging Sciences, Islamabad Campus

Course:	**Programming Fundamentals**	**Course Code:**	
Program:	**BS (Computer Science)**	**Semester:**	**Fall 22**
Duration:	**25 Minutes**	**Total Marks:**	
Paper Date:	**05-Dec-2022**	**Weight**	
Section:		**Name:**	
Exam:	**Quiz**	**Roll No.**	

Instruction/Notes:

1. **Consider the following code segment and choose the correct option**

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

void swap (char *x, char *y)
{
char *t = x;
x = y;
y = t;
}

int main()
{

char *x = "Hello";
char *y = "World";
char *t;
swap(x, y);

cout<<x << " "<<y;

t=x;
x=y;
y=t;

cout<<" " << x<< " "<<y;

return  0;
}
```

Options:

I. World Hello World Hello
II. Hello World Hello World
III. Hello World World Hello
IV. Compiler error

2. Write the output of the code. Assume all libraries are included.

```
int main()
{
int arr[20];
for (int i=0;i<20;i++)
        {
        cout<<"enter the element no "<<i+1<<endl;
        cin>>arr[i];
        }

for (i=0;i<20;i++)
        {
        for (int j=0;j<20;j++)
                {
                if (i!=j)
                {
                        if (arr[i]==arr[j])
                        arr[j]=0;
                        else
                        continue;
                }
                else
                continue;
                }
        }

for (i=0;i<20;i++)
        {
        if (arr[i]<=100&&arr[i]>=10)
        cout<<arr[i]<<endl;
        else
        continue;
        }

return 0;
}
```

Output: _____

3. **Assume that address of 0th index of array 'a' is : 200. What is the output of the following code.**

```
int main()
{
int a[3] = {1, 2, 3};
cout << *(a + 2);

return 0;
}
```

Output: _____

4. **Write down the output of the program.**

```
int function(int x, int *py, int **ppz)
{
 int y, z;

**ppz += 1;
z = **ppz;
*py += 2;
y = *py;
x += 3;

return x + y + z;
}

int main()
{
int c, *b, **a;

c = 4;
b = &c;
a = &b;

cout << function(c, b, a);

return 0;
}
```

Output:

I. 21
II. 18
III. 19
IV. 24

5. **Write a program using two-dimensional array to store the following values**

4	40	45	35	12
11	30	35	40	10
23	20	25	20	6
35	15	18	22	5
49	23	15	23	6

Now, calculate the sum of all diagonals as shown in the above figure.