



Air University
Mid Semester Examination Fall 2023
Department of Cyber Security

Subject:- Programming Fundamental
Course Code:- CS111
Class:- BS CYB
Semester:- I
Section(s):- A, B

Total Marks:- 100
Date:- 4th November 2023
Time:- 9-11AM
Max Time Allowed: 2 Hrs.

FM(s) Name:- Dr. Kashif Kifayat
FM Signature:

Special Instructions:

- ❖ Calculators are allowed.
- ❖ All questions are to be solved on answer sheets.
- ❖ Closed notes and books.
- ❖ Minor syntax mistakes could be ignored.
- ❖ Opening and closing brackets should be strictly followed.

Section A:

[CLO-4]
[50 Marks]

1. What is the output of the following program.

```
#include "stdafx.h"
#include <iostream>
using namespace std;

int main()
{
    int a=15, b=25, c=35, z=0;

    if(a>5 && b>a && c<=30)
        a+=10;
    if(b>c && a>b)
        c+=30;
    if(a==10 || c>50)
        a+=30;
        b+=10;
```

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```

        c+=10;
    z=a+b+c;
    cout<<z++<<endl;
    cout<<z<<endl;

    return 0;
}

```

[5]

2. What is the output of the following program.

```

int main()
{
    int a=15, b=25, c=30, z=0;

    if(a>5 && b>a && c<=30)
        a+=10;
    if(b>c && a>b)
    {
        c+=30;
        if(a==10 || c>50)
            a+=30;
            b+=10;
            c+=10;
    }
    z=a+b+c;
    cout<<z;

    return 0;
}

```

[5]

3. Please select the output of the following program from below answers.

```

int main()
{
    int a=10, b=20, c=30, z=0;

    for(a=0; a<b; a++)
        for(b=a; b<a; b++)
            z+=10;
    cout<<z;

    return 0;
}

```

2

}

Select Answer

- a. 120
- b. 0
- c. 50
- d. 100

[5]

4. Please select the output of the following program from below answers.

```
int main()
{
    int a=5,z=1;
    int i;

    for(i=1;i<a;i++)
        z*=i;

    cout<<z;

    return 0;
}
```

Select Answer

- a. 100
- b. 24
- c. 6
- d. 200

[5]

5. Please select the output of the following program from below answers.

```
#include "stdafx.h"
#include <iostream>
#include <conio.h>

using namespace std;

int add();
int sub();
int mul();
int divd();
```



```

int main()
{
    cout<<add()+sub()-mul()*divd();

    return 0;
}

int add()
{
    int a=10, b=100,c;
    c=a+b;
    return(c);
}
int sub()
{
    int a=200, b=100,c;
    c=a-b;
    return(c);
}
int mul()
{
    int a=10, b=10,c;
    c=a*b;
    return(c);
}
int divd()
{
    int a=200, b=100,c;
    c=a/b;
    return(c);
}

```

Select

- a. 350
- b. 34
- c. 10
- d. 312

6. What is the output of the following program.

[10]

```

Void add(void);
int sub();
int mul(int, int);
int divd(int, int);

```

4


```

int cub(int);
int sqr(int);
int _tmain(int argc, _TCHAR* argv[])
{
    cout<<cub(divd(mul(sub(),10),sub()))<<"-";
    cout<<divd(sqr(mul(5,5)),cub(5));

    _getch();

}

void add()
{
    int a=10, b=100,c;
    c=a+b;
    cout<<c<<endl;
}
int sub()
{
    int a=200, b=100,c;
    c=a-b;
    return c;
}
int mul(int a, int b)
{
    int c;
    c=a*b;
    return c;
}
int divd(int a, int b)
{
    int c;
    c=a/b;
    return c;
}
int cub(int a)
{
    return(a*a*a);
}

int sqr(int a)
{
    return(a*a);
}

```


7. What is the output of the following program.

```
int _tmain(int argc, _TCHAR* argv[])
{

int a[5][5], z=2;
int b[5][5], k=5;
int c[5][5];

for(int i=0;i<5;i++)
{
    for(int j=0;j<5;j++)
        a[i][j]=z;
    z++;
}

for(int i=0;i<5;i++)
{
    for(int j=0;j<5;j++)
        b[i][j]=z;
    k++;
}

for(int i=0;i<5;i++)
    for(int j=0;j<5;j++)
        c[i][j]=a[i][j]+b[i][j];

for(int i=0;i<5;i++)
{
    for(int j=0;j<5;j++)
        cout<<c[i][j]<<"\t";
    cout<<"\n";
}
```

[10]

Section B: Attempt any two of the followings:

**[CLO1]
[30 Marks]**

1. Please define why conditional statements are used e.g. if, if else, and switch. Please explain with examples.
[15]
2. Please describe why loops are used and how many times of loops are there. Explain each loop with example.
[15]
3. Please describe why array are used and how it works please explain with help of examples.
[15]

Section C:

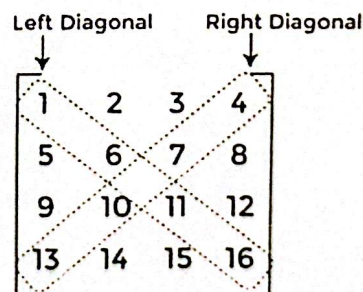
**[CLO2]
[20 Marks]**

4. Write user defined two functions to calculate the below diagonals. In this program you need to define 4x4 matrix, take user input then calculate:

[20]

- (a) Left diagonal sum
- (b) Right diagonal sum

Note:



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