

Introduction to C++ programming

Exam – Part 1 (version B)

Exercise 1. Explain what is the result of the execution of the program below. Motivate your answer.

```
1  using namespace std;
2
3  int main() {
4      int i1,i2;
5      for(i1=4;i1<=16;i1=i1+4) {
6          for(i2=i1/2;i2>=i1/4+1;i2--)
7              cout << i1+i2 << " ";
8          cout << endl;
9      }
10     return 0;
11 }
```

Exercise 2. Explain what is the result of the execution of function **c1** (see code below) when it is called with a positive argument. Motivate your answer by describing what happens when the code is executed.

```
1  int c1(int x){
2      if(x==0){
3          cout << 1 << endl;
4          return 1;
5      }
6      int a=3*c1(x-1);
7      cout << a << endl;
8      return a;
9  }
```

Exercise 3. In function **g** (see code below) parameter **n** represents the size of array **v**, while **m** is the size of array **w**. Explain in which case function **g** returns **true**. Motivate your answer.

```
1  bool g(int v[], int n, int w[], int m){
2      for(int i=0;i<=n-m;i++){
3          bool a=true;
4          for(int j=0;a&& j<m; j++){
5              if(w[j]!=v[i+j])
6                  a=false;
7          }
8          if(a)
9              return true;
10     }
11     return false;
12 }
```