

Laborator 1 – LFTC

1)

Mini limbaj de programare bazat pe C++

<operator> ::= <operator_aritmetic> | <operator_relational>

<operator_aritmetic> ::= + | - | * | / | %

<operator_relational> ::= < | > | <= | >= | == | !=

<expresie> ::= ID | CONST <operator_aritmetic> ID | CONST

<tip_date> ::= int | float | <structura>

<structura> ::= struct ID { <declaratii_variabile> };

<declaratii_variabile> ::= <declaratie_variabila> | <declaratia_variabila>

<declaratii_variabile>

<declaratie_variabila> ::= <tip_date> ID;

<instructiune> ::=

<declaratii_variabile> | <atribuire> | <intrare> | <iesire> | <if> | <while> | <return>

<lista_instructiuni> ::= <instructiune> | <instructiune> <lista_instructiuni>

<atribuire> ::= ID = <expresie> | CONST | ID;

<iesire> ::= std::cout << ID | CONST | <expresie>;

<intrare> ::= std::cin >> ID;

<if> ::= if(<cond>){<lista_instructiuni>}

<cond> ::= ID | CONST <operator_relational> ID | CONST

<while> ::= while(<cond>){<lista_instructiuni>}

<return> ::= return ID | CONST;

<program> ::= #include<iostream>int main(){<lista_instructiuni>return 0;}

ID: [a-zA-Z_][a-zA-Z_0-9]{0,249}

CONST: ([1-9][0-9]*) | ("."+") | 0

2)

a. Perimetru si raza cercului

```
#include<iostream>
int main(){
    std::cout<<"Dati raza\n";
    float raza;
    std::cin>>raza;

    float perimetru;
    perimetru=2*3.14;
    perimetru=perimetru*raza;
    std::cout<<"Perimetrul: ";
    std::cout<<perimetru;
    std::cout<<"\n";

    float arie;
    arie=3.14*raza;
    arie=arie*raza;
    std::cout<<"Aria: ";
    std::cout<<arie;
    std::cout<<"\n";
    return 0;
}
```

b. Cmmdc

```
#include<iostream>
int main(){
    std::cout<<"Dati numerele\n";
    int x;
    int y;
    std::cin>>x;
    std::cin>>y;
    while(y!=0){
        int r;
        r = x%y;
        x = y;
        y = r;
    }
    std::cout<<x;
    std::cout<<"\n";
    return 0;
}
```

c. Suma a n numere de la tastatura

```
#include<iostream>
int main(){
```

```

    int n;
    int s;
    s = 0;

    std::cout<<"Dati n\n";
    std::cin>>n;

    int i;
    i = 0;
    while(i<n){
        int nr;
        std::cin>>nr;
        s = s + nr;
        i = i + 1;
    }

    std::cout<<s;
    return 0;
}

```

3)

a) Erori si in MLP si in limbajul originar

```

#include<iostream>
int main(){
    if 2 > 3 {
        std::cout<<"2 e mai mic ca 3"
    }
    return 0;
}

```

Erori:

- Lipsesc parantezele de la if
- Instructiunea de iesire se termina in mod normal cu ;

b) Erori doar in MLP

```

#include<iostream>
int main(){
    int x;
    int y;
    std::cin>>x>>y;
    int minim;
    minim = (x < y ? x : y);
    std::cout<<minim;
    return 0;
}

```

Erori:

- Instructiunea de intrare primeste mai multi parametri, in MLP se accepta doar un identificator
- Inline-if-ul – MLP nu suporta ca atribuire o astfel de expresie