

Indian Institute of Information Technology, Nagpur

Department of Computer Science and Engineering

Session:2019-2020

Course: Compiler

Assignment 2

Semester: VI

Marks: 30

This assignment is based on preprocessing C language program. You need to form a group of 3 or (at a maximum) 4 students from the same batch. Submission will be in the last week, i. e. 27th (for Section A) / 28th (for Section B) of February 2020.

1. Convert “for-loop”/“do-while loop” to “while loop” without changing the meaning of the program. There may be loops inside loops and so on. The input would be a C language program and output would be a valid C language program. Both the programs should be compiling and producing same output for same input. **[10M]**
2. Write a lex program which takes a C language program as input and places a marker <KW> and <ID> with every Keyword and Identifier respectively.

Example:

Input Program

```
main()  
{  
    int a = 10;  
    printf(“%d\n”, a);  
}
```

Output program

```
main()  
{  
    int<KW> a<ID> = 10;  
    printf(“%d\n”, a);  
}
```

[10M]

3. Write code to process macros.
For Example:

```
#define f(x) x*x
```

If anywhere f(x) appears in any function then it is replaced by the right side of the macro substituting for the argument ‘x’.

For example, f(3) would be replaced with 3*3. Remember that a macro can call another macro.

The program should also produce a table of all macros (#defines) and their values.

[10M]