

Tutorial 5

1. What are the uses of OPTAB (Mnemonic operation code) and SYMTAB (Symbol table) during assembling process? Specify the uses of each during pass 1 and pass 2 of a two pass assembler.
2. What are assembler directives? List any three assembler directives.
3. Find out addresses of variable using LC.
Step 1: First identify all variables in your program.
Step2: Replace all symbolic address with numeric address.
Step3: Replace symbolic opcodes by machine operation codes.

```
START 101
READ N
MOVER BREG, ONE
MOVEM BREG, TERM
AGAIN MULT BREG, TERM
MOVER CREG, TERM
ADD CREG, ONE
MOVEM CREG, TERM
COMP CREG, N
BC LE, AGAIN
MOVEM BREG, RESULT
PRINT RESULT
STOP
N DS 1

RESULT DS 1

ONE DC '1'
TERM DS 1
```

4. Design an automata for set of all strings of length 5.
5. Design an automata for identifying constants and keywords.