

PC-389-CV-19
M.Sc. (3rd Semester)
Examination, Dec.-2020
COMPUTER SCIENCE
Paper-III

THEORY OF COMPUTATION AND COMPILER DESIGN

Time : Three Hours]

[Maximum Marks : 80

[Minimum Pass Marks : 29

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

Section-A

1. Answer all the following:-

1x10=10

- (a) DFA Stands for.....?
- (b) Define Automata?
- (c) What do you mean by Ambiguity?
- (d) Define term pushdown?
- (e) What is RE?
- (f) CFL Stand for.....?
- (g) Define parsers?
- (h) What do you mean by Lexical?
- (i) Define DAG?
- (j) What do you mean by runtime environments?

2. Answer the following questions:-

2x5=10

- (a) Write the use of Automata concept?
- (b) What do you mean by regular Expressions.
- (c) Write the Advantages of CFG?
- (d) Define pushdown Automata.
- (e) Explain global data flow?

Section-B

12x5=60

Answer all question.

3. Explain deterministic Finite Automata with suitable example?

OR

Describe Non-deterministic finite Automata with suitable example?

4. Describe context-free grammar with its features and applications?

OR

Explain the following:-

- (a) Deterministic pushdown Automata.
- (b) Context-free grammar.

5. What is normal forms for CFG? Explain pumping Lemma for CFL?

OR

Describe Un-decidable problems about Recursive and Turing machine in detail?

6. Explain compiler and its phases with appropriate diagram?

OR

Explain the following:-

- (a) Role of lexical Analyzer.
- (b) Top down and Bottom up parsing.

7. What is peephole optimization? Explain principal sources of optimization?

OR

Describe basic blocks of DAG and code generation and optimization?