

## U.G. 6th Semester Examination 2022

### COMPUTER SCIENCE (Honours)

Paper Code : DC-14

[Compiler Design]

Full Marks : 25

Time : Two Hours

*The figures in the margin indicate full marks.  
Candidates are required to give their answers in their own words as far as practicable.*

#### Group - A

1. Answer any *six* questions from the following : 2×6=12
- (a) Convert the expression  $a = b * -c + b * -c$  into Three Address statements.
  - (b) Explain the following: Lexeme, Token.
  - (c) Define left most derivation with example.
  - (d) What is left factoring? Give example.
  - (e) Differentiate Parse tree and Syntax tree with an example.
  - (f) What are the limitations of recursive descent parser?
  - (g) What is ambiguity? How to eliminate it? Give example.
  - (h) How to construct the flow graph for intermediate code?

#### Group - B

Answer any *two* questions. 10×2=20

2. (a) Construct the non recursive predictive parse table for the following grammar and check the acceptance of input string “**abfcg**”.
- $$S \rightarrow A \quad A \rightarrow aB / Ad \quad B \rightarrow bBC / f \quad C \rightarrow cg$$
- (b) Is the following grammar LL(1)?  $G : S \rightarrow iEts \mid iEtSes \mid a, E \rightarrow b$
- (c) Write the rules for computing FIRST() and FOLLOW(). 5+2+3=10

[P.T.O.]

3. (a) Explain the Non-Recursive predictive parsing with an example.
- (b) Identify the lexemes and their corresponding tokens in the following statement:  
`printf ("Simple Interest=%f\n", si).`
- (c) Differentiate between CLR and LALR parsers. 5+2+3=10
4. (a) What are the different phases of compiler in synthesizing the target program? Explain with an example.
- (b) Write a short note on : Activation Records 5+5=10
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