

School of Computing Science and Engineering**Bachelor of Technology in Computer Science and Engineering
Semester End Examination - Jun 2024****Duration : 180 Minutes
Max Marks : 100****Sem VI - R1UC603C - Compiler Design**General Instructions*Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Compare synthesized attributes and inherited attributes in the compiler design. K1(2)
- 2) Differentiate between shift/reduce and reduce/reduce conflict with example in compiler design. K2(4)
- 3) Differentiate between left recursion and left factoring with suitable examples. K2(6)
- 4) Discuss the following in detail about the Syntax Directed Definitions. (i) Inherited Attributes and Synthesized attributes(ii) Evaluation of SDD in a parse tree. K3(9)
- 5) Construct the quadruple, triple and indirect triple for the following expression: $(x+y) * (y+z) + (x+y+z)$ K3(9)
- 6) Define left factoring and eliminate the left recursion for the following grammar: $A \rightarrow ABd / Aa / a$ $B \rightarrow Be / b$ K5(10)
- 7) Explain the concept of Canonical LR parser in compiler design. Discuss its significance in the context of parsing techniques, and highlight its advantages of canonical LR parser over other parsing algorithms. K4(12)
- 8) Discriminate between left and right recursion. Construct LL(1) parsing table for the following grammar: $E \rightarrow TE'$ $E' \rightarrow +TE' / \epsilon$ $T \rightarrow FT'$ $T' \rightarrow *FT' / \epsilon$ $F \rightarrow (E) / id$ K5(15)
- 9) Discriminate between left and right recursion. Construct LL(1) parsing table for the following grammar: $S \rightarrow (L)/a$ $L \rightarrow SL'$ $L \rightarrow ,SL' / \epsilon$ K5(15)
- 10) Design the S-attributed grammar to connect the grammar: $L \rightarrow E$, $E \rightarrow E+T \mid E-T \mid T$, $T \rightarrow T^*F \mid T/F \mid F$, $F \rightarrow P \uparrow F \mid P$, $P \rightarrow (E)$, $P \rightarrow id$ with prefix notation. K6(18)