

Independent University, Bangladesh
CSE 313 (Compiler Construction) Final exam Autumn 2021 Total: 20
Instructor: Ms. Kaniz Fatema, Bijoy Rahman Arif Time: 1h30m + 10m

Answer **All 4** questions. All have equal marks.

1. Consider the following grammar:

$A \rightarrow A \sim B / B$
 $B \rightarrow B \& C / C$
 $C \rightarrow C \% D / D$
 $D \rightarrow D * A / d$

If we want to implement a Operator Precedence Parser (OPP), what is wrong? Explain by drawing Operator Precedence Graph.

2. Draw detail SLR(1) parse table for the following grammar. If there are conflicts, point those out.

$A \rightarrow aAB / bB$
 $B \rightarrow bB / bC$
 $C \rightarrow cC / A / \epsilon$

3. Based on number of conflicts, error handling and detection, and number of states, argue CLR(1) is the most powerful Bottom Up Parser (BUP). For each criteria, give proper reasoning.

4. For Bottom Up parser (BUP) number of states:

$$LR(0) = SLR(1) = LALR(1) \leq CLR(1)$$

If you think the above argument is true, explain with proper reasoning.