

1st Compiler Design Assignment for 6th Semester, CSE students-2022

Q1. What do you mean by Front end and Back end of Compiler? Which one of phase of compiler is optional?

(a)What do you mean by cross compiler?

(b)Write down the difference between phase and passes of a compiler.

Q2. What are the functions of Lexical Analysis Phase? Find the no. of token and identify them, for following C- code snippet

```
int addition (int x, int y)
{
    Return x+y;
}
```

Q3. What do you mean Lexme, Token and Pattern?

Q4. Give a Pattern for 'C Language' identifier and draw it's finite state diagram?

Q5. Explain the phases of compiler with suitable examples.

Q6. What is left recursive and non-deterministic grammar, state with examples? Why these two types of CFG are not suitable for Non recursive descent Top-down Parsing.

Q7.: Find out the FIRST () and FOLLOW () for the following grammar

$$R \rightarrow R + R \mid RR \mid R * (R) \mid a \mid b$$

Q8. Construct the Predictive parser for following grammar 'G' and check whether the grammar is LL (1) or not

G: $S \rightarrow (L) \mid b$

$L \rightarrow L ; S \mid S$

Q9. Check, whether the following input string 'W' is one of the valid input or not for the grammar given in (Q8).

W: (b; b)

Q10. Give some examples on Lexical, Syntax and semantic error.

Q11. What do you mean by HANDEL? Give a suitable example

Q12. Construct a CLR (Canonical LR) parse table for the following grammar

$S \rightarrow AaAb \mid BbBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

Q13. Construct the LALR parse table for following grammar and check whether the grammar is LALR(1) or not

$S \rightarrow Aa \mid bAc \mid dc \mid bda$

$A \rightarrow d$

Parse the string "bdc".

Q14. Construct precedence graph and precedence function mapped table for the given precedence relation table and show the parsing action for the input string "id+id*id":

| | id | + | * | \$ |
|----|----|----|----|----|
| id | | .> | .> | .> |
| + | <. | .> | <. | .> |
| * | <. | .> | .> | .> |
| \$ | <. | <. | <. | |

Q15.

(i) The most powerful parser is ____.

(a) SLR (b) CLR (c) LALR (d) LL(1)

(ii) Shift reduce parsers are ____.

(a) Top down parser (b) Bottom up parser (c) May be top down or bottom up parser (d) None of these

(iii) What is the language over the alphabet {0, 1} is described by the regular expression:

$(0+1)^* 0 (0+1)^* 0 (0+1)^* ?$

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