

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech., Summer2018-19 Examination

Semester: 6
Subject Code: 03105352
Subject Name: Principles of Compiler Design

Date: 02/05/2019
Time: 10:30am to 1:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions.**(15)**

1. Define Term: Handle Pruning
2. Define Term: Lexeme.
3. Define Term : Left Recursion
4. Define Term: Inherited Attribute
5. Define Term: DAG
6. The Graph that shows basic blocks and their successor relationship is called
 - A. DAG
 - B. Flow Graph
 - C. Control Graph
 - D. Hamiltonian graph
7. A bottom-up parser generates
 - A. Right most Derivation
 - B. Right most Derivation in Reverse
 - C. Left most Derivation
 - D. Left most Derivation in Reverse
8. In a Compiler, Keywords of a language is recognized during
 - A. Parsing of the Program
 - B. The code generation
 - C. The lexical analysis of the program
 - D. dataflow analysis
9. The number of tokens in the following C statement is:

```
printf("i = %d, &i = %x", i, &i);
```

 - A. 3
 - B. 26
 - C. 10
 - D. 21
10. Which of the following statement is false?
 - A. An unambiguous grammar has same leftmost and rightmost derivation
 - B. An LL (1) parser is a top-down parser
 - C. LALR is more powerful than SLR

D. An ambiguous grammar can never be LR(k) for any k

11. One name of tool that used in lexer Generator is _____
12. SDT stands for _____
13. A grammar that produces more than one parse tree for some sentence is called _____ grammar.
14. Top down Parser is also known as _____ parser.
15. _____ is a data structure used by the compiler to keep track of semantics of the variables.

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) Do as per directed:

1. Difference Between Top down Parser and Bottom up Parser
2. Define: Annotated Parse Tree with example.

B) Explain Peephole Optimization & it's Techniques with example.

C) Define Error Recovery & explain Error Recovery Techniques with example.

D) Explain Input Buffering Technique.

Q.3 A) Construct a NFA to DFA using Syntax directed tree method $(a | b)^*abb$ **(07)**

B) Give your answer on LL(1) is justify or Not for a given Grammar. **(08)**

$S \rightarrow T; S | \epsilon$

$T \rightarrow U.T | U$

$U \rightarrow x | y | [S]$

OR

B) Explain: **(08)**

1. SR Conflict and RR Conflict
2. Operator Precedence Parser

Q.4 A) Define Three address code in Compiler and Write quadruple, triples and indirect triples for following expression : **(07)**

1. $(x + y) * (y + z) + (x + y + z)$

2. $a * -(b + c)$

OR

A) Explain the Phases of Compiler with suitable example in flow diagram. **(07)**

B) Apply LALR on the following Grammar: **(08)**

$S \rightarrow CC$

$C \rightarrow aC | d$

Also check the acceptance of the string aadd with the given grammar.