PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter Examination 2022-23

Semester:6
Subject Code: 203105351
Subject Name: Compiler Design

Date: 17/10/2022
Time: 2.00 pm to 4.30 pm
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** - (All are compulsory) (Each of one mark)   **(15)**

1. Lexical Phase uses which Automation for Recognition of Tokens .
   a.Finite Automata   b.PushDown Automata
   c.Linear Bound Automata   d.None
2. When expression mul = 4*3 is tokenized then what is the token category of mul .
   a.Identifier   b.Constant
   c.Operator   d.Assignment Operator
3. Which of the following parser is the most powerful parser?
   a.SLR   b.LALR
   c.Canonical LR   d. Operator Precedence
4. Data items grouped together for storage purposes are called a
   a.Record   b.String
   c.Title   d.List
5. Which of the following entities are managed by runtime environment ?
   a.Code   b.Procedures
   c.Variables   d.All of the above
6. Lexical analyser reads source program character by character and breaks the program into ……….
7. Consider the following code statement tell the no of tokens are …….
   int a,b,c;
   printf("this is compiler design");

8. ……..is also known as look-head LR parser .
9. …….....attributes get values from the attribute values of their child nodes.
10. With the help of ………intermediate code generation type we can eliminate common subexpression .
11. The Symbol Table is a data structure containing a record for each variable name, with fields for the attributes of the name.(True/False)
12. If LALR(1) parser has Shift reduce conflict then CLR(1) parser also have Shift reduce conflict .(True/False).
13. Target Code Generation Phase generates code by using address information of identifier present in the table.(True/False)
14. Recursive Descent Parser is top down parser . (True/False)
15. Only one operator is allowed in three address code representation.(True/False)

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

A) Calculate First and follow set for the non terminal A and B for the following grammar production .
S->aAbB|bAaB|£
A->S
B->S

B) S->xx W {print"1"}
   S->y {print"2"}
   W->Sz {print"3"}

A shift reduce parser carries out the actions specified within braces immediately after reducing with the corresponding rule of grammar. Using the syntax directed translation scheme described

by the above rule, the output of the input xxxxyzz is
C)Describe the operations used in the symbol table.
D)Write the difference between S-attribute and L-attribute definations .

Q.3 A) Explain Recursive Descent Parser. **(07)**

B)What is 3-address code .Write 3-adress code for the following code **(08)**

Int i=0
While (i<=10)
printf(i=%d,i);
i++;

OR

B) Elaborate briefly about Code Generation phase **(08)**

Q.4 A). Construct LR parsing table for the given context-free grammar **(07)**

S–>AA
A–>aA|b

OR

A) Explain all the phases of compiler **(07)**

B) A)Construct Syntax Tree and Directed Acyclic Graph for the following expression **(08)**
T=(a*b)+(a*b) /(a*b)
Also compare both the representation.