Internal Assessment Question Paper – 1

Ramaiah Institute of Technology
(Autonomous Institute, Affiliated to VTU)
Department of Computer Science & Engineering

Programme: B.E **Term: Feb to June 2021**
Course: Compiler Design **Course Code: CS61** **Date: 09-06-2021**
CIE: I **Sem: VI** **Section: A (SA), B (SA), & C (APK)**
Max Marks: 30 **Time: 1 Hr** **Portions for Test: L1-L20**

Instructions to Candidates:

1. Question 1 is **compulsory.** Answer two full questions.
2. Each Question carries 15M.
3. Mobiles, smart watches or any electronic gadgets are strictly banned.

Sl#	Question	Marks	Bloom's Level	CO Mapping
1	a) Explain about the role of lexical analyzer. Why the analysis phase of compiler is separated into lexical analysis and parsing?	5	L2	CO1
	b) Construct a LL(1) parsing table for the grammar given below. Check whether the grammar is LL(1) or not. S→ +TS |)S | ε T→ (X) X→TX | [X] | y	7	L3	CO2
	c) Show the moves made by the stack of a shift reduce parser for accepting the input " id+id+id" G: E→E+T | T T→id	3	L4	CO2
2	a) Define Lexeme and Token. Identify the lexemes and token from the program fragments given below printf("The value is %d", value);	5	L2	CO1
	b) Eliminate the left recursion from the following grammar. S→ A | B A→Aa | ε B→Bb| Sc | ε	6	L3	CO2
	c) Construct the Transition Diagram for accepting the given operators. +, -, *, /, ++, --	4	L3	CO1
3	a) Consider the following CFG: S→ AaAb | BbBa A →ε B →ε Give the canonical collections of LR(1) items for this grammar	6	L3	CO1
	b) Describe the strategies available for the parser to recover from the detected error.	4	L2	CO2
	c) Most languages are case sensitive, so keywords can be written only one way, and the regular expressions describing their lexeme is very simple. However, some languages, like SQL, are case insensitive, so a keyword can be written either in lowercase or in uppercase, or in any mixture of cases. Thus, the SQL keyword SELECT or FROM can also be written select, FrOm, From, Select, or sElEcT, for instance. Write a regular expression for the SQL command in a case insensitive language. Illustrate the idea by writing the regular expression for "select attribute_name from table_name" in SQL.	5	L4	CO1

Course Outcomes meant to be assessed by the IA Test 1:
CO1: Construct lexical analyzer to recognize inputs using patterns.
CO2: Devise different types of syntax analyzers using grammars.