PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – MAY 2025

Date: 31-05-2025

Time: 09:30 am – 12:30 pm

School: SOCSE	**Program:** B.Tech-CSE
Course Code:CSE3077	**Course Name:** Compiler Design
Semester: VI	**Max Marks:** 100 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	24	24	26	26	NA

Instructions:

(i) *Read all questions carefully and answer accordingly.*

(ii) *Do not write anything on the question paper other than roll number.*

Part A

Answer ALL the Questions. Each question carries 2marks.   **10Q x 2M=20M**

1.	Differentiate Compiler and Interpreter.	2 Marks	L2	CO1
2.	Define token, Pattern and lexeme.	2 Marks	L1	CO1
3.	List the possible error-recovery actions in Lexical Errors.	2 Marks	L1	CO2
4.	Write the rules for eliminating left factoring in a grammar. Give an example.	2 Marks	L1	CO2
5.	What is backpatching?	2 Marks	L1	CO3
6.	How synthesized attributes are evaluated explain with example.	2 Marks	L2	CO3
7.	List types of Intermediate Code Generation Techniques?	2 Marks	L1	CO3
8.	What is Constant Folding.	2 Marks	L1	CO4
9.	What are the rules to choose a Leader?	2 Marks	L1	CO4
10.	Explain any one issue of Code Generation?	2 Marks	L2	CO4

Part B

Answer the Questions.   **Total Marks 80M**

11.	a.	Explain Phases of Compiler in detail with an the following example X=A*B/N+P-D	10 Marks	L3	CO1
	b.	Develop Lex program to count number of words in a given line.	10 Marks	L3	CO1
Or				
12.	a.	Define Compiler Construction Tool? List its types? Explain in detail about each tool.	10 Marks	L2	CO1
	b.	What is a Lexical Error? List Lexical Errors? Explain error recovery in Lexical Analyzer.	10 Marks	L2	CO1
13.	a.	Construct Predictive parse table for the following Grammar **S → iEtS | iEtSeS | a** **E → b**	15 Marks	L3	CO2
	b.	What is Recursive Descent Parser? Explain with an example.	5 Marks	L2	CO2
Or				
14.	a.	Construct CLR(1) parsing table for the following grammar **S → L = R | R** **L → ∗ R | id** **R → L**	20 Marks	L3	CO2
15.	a.	Make use of any example to explain Annotated Parse Tree.	5 Marks	L3	CO3
	b.	Differentiate S-Attributed and L Attributed SDT.	5 Marks	L2	CO3
	c.	Define DAG? Construct DAG for the following Example a + a * (b - c) + (b - c) * d	10 Marks	L3	CO3
Or				
16.	a.	Write a program to convert the BNF rules into Yacc form and generate abstract syntax tree.	20 Marks	L3	CO3
17.	a.	How to design a simple code generator? Write Code Generation Algorithm? Explain each step in detail.	15 Marks	L2	CO4
	b.	Construct a flow graph for the following three address statements L1: I = 1 L2: if (I < 10) then goto TRUE L3: goto EXIT L4: T1 = b[i] T2 = T1 + c a = T2 T3 = I + 1 I = T3 goto WSTART L5: T4 = a + c Result = T4	5 Marks	L3	CO4
Or				
18.	a.	Write a C program to generate machine code from abstract syntax tree generated by the parser.	20 Marks	L3	CO4