



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.												
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End - Term Examinations – May/June 2026

Date: 14 – 05- 2026

Time: 01:00pm – 04:00pm

School: SOCSE	Program: B.Tech.	
Course Code: CSE2514	Course Name: Compiler Design	
Semester: VI	Max Marks: 100	Weightage: 50%

CO – Levels	C01	C02	C03	C04	C05	C06
Marks	12	12	24	24	14	14

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.	List and brief Cosines of compiler	2 Marks	L2	C01
2.	Calculate follow list of node + in the expression $(a*.b)+b$	2 Marks	L2	C02
3.	List any three Advantages of Top Down Parsing approach	2 Marks	L1	C03
4.	What is ambiguity in grammar?	2 Marks	L1	C03
5.	Differentiate S-atributes and L-attributes.	2 Marks	L1	C04
6.	Write Row major representation of your own two dimensional matrix with appropriate memory mapping.	2 Marks	L1	C04
7.	Define loop optimization.	2 Marks	L1	C05
8.	Mention the benefit of data flow diagram in flow analysis.	2 Marks	L2	C05
9.	List out the points to detect leaders in block identification.	2 Marks	L2	C06
10.	Mention the use of algebraic identities in optimization of basic blocks.	2 Marks	L2	C06

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Discuss all the phases of compiler with a with a diagram for expression $a+b*c$.	10 Marks	L2	CO1
Or					
12.	a.	Explain Input Buffering with simple examples.	10 Marks	L2	CO1
13.	a.	Construct Deterministic Finite Automata to accept the regular expression $(a b)^*bb(a b)^*$ using direct method.	10 Marks	L2	CO2
Or					
14.	a.	Explain LEX Tool with an Lex Program.	10 Marks	L2	CO2
15.	a.	Construct the predictive parsing table for the grammar $G = \{ S \rightarrow iEtS \mid iEtSeS \mid a$ $E \rightarrow b \}$ and check whether G is LL(1) or not to parse the string "ibtaea"	20 Marks	L3	CO3
Or					
16.	a.	Consider the following grammar: $E \rightarrow E + T \mid T$ $T \rightarrow T * F \mid F$ $F \rightarrow (E) \mid a \mid b$ Construct the SLR parsing table and also parse the input " $a*(b+a)$ "	20 Marks	L3	CO3
17.	a.	Draw the syntax tree and DAG for the following expression: $(a*b)+(c-d)*(a*b)+b$	10 Marks	L2	CO4
	b.	Consider the following grammar: $E \rightarrow E + T \mid T$ $T \rightarrow T * F \mid F$ $F \rightarrow \text{digit}$ a) Write the semantic rules to evaluate the value of arithmetic expressions using synthesized attributes. b) Construct the annotated parse tree for the expression $3 + 5 * 4$ and show the step-by-step evaluation of attributes.	10 Marks	L2	CO4
Or					

18.	a.	Calculate physical address of an array index $a[2][3]$ and $a[4][1]$ with help of following details. $a[0][0]$ stores at address 350, the width of data type is defined as 3 and initial declaration of array is $\text{int } a[5][4]$. Consider your system follows row major memory representation.	10 Marks	L2	C04
	b.	Generate an intermediate code for the following code segment with the required SDT scheme. <pre> if (p < q) x = a + b else x = a - b </pre>	10 Marks	L2	C04

19.	a.	Represent given code as DAG using basic blocks. Explain optimization in detail for the given code <pre> i = 0 a := n - 3 if i < a then goto loop else goto end loop: b := i - 4 c := p + b d := m[c] e := d - 2 f := i - 4 g := p + f m[g] := e i := i + 1 a := n - 3 if i < a then goto loop else goto end end </pre>	10 Marks	L2	C05
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Or					
20.	a.	Discuss any four Characteristics of peephole optimizations	10 Marks	L2	C05

21.	a.	List and explain various forms of Target code. Explain importance of cousins of compiler with respect to each code form.	10 Marks	L2	C06
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Or					
22.	a.	Discuss the principle use of register in the design of a code generator for a simple conditional statement.	10 Marks	L2	C06