



**Sixth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026**

## Compiler Design

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks , L: Bloom's level , C: Course outcomes.

Module - 1				M	L	C
Q.1	a.	Explain different phases of compiler with example position = initial + rate * 60	10	L2	CO1	
	b.	Describe an overview of different software productivity tools.	6	L2	CO1	
	c.	How program translations used in compiler. Justify with types.	4	L3	CO1	
OR						
Q.2	a.	What is Compiler? Explain a language processing system.	10	L1	CO1	
	b.	Describe applications of compiler technology with respect to i) Implementation of high level programming languages ii) Optimization for computer architecture	6	L2	CO1	
	c.	Write intermediate code for "do i = i + 1 ; while (a [i] < v) ;"	4	L3	CO1	
Module - 2						
Q.3	a.	Explain input buffering strategy used in Lexical analysis.	8	L1	CO2	
	b.	Construct the transition diagram to recognize the tokens given below i) Relational operation ii) Unsigned number	8	L2	CO2	
	c.	Eliminate left recursion of the following grammars. i) $L \rightarrow L, id / id$ ii) $rfactor \rightarrow rfactor *   rprimary$	4	L3	CO2	
OR						
Q.4	a.	Explain two ways to handle Reserved words and identifiers.	8	L1	CO2	
	b.	Discuss different error recovery strategies.	8	L2	CO2	
	c.	Write four operations on language with example.	4	L3	CO2	
Module - 3						
Q.5	a.	Construct predictive parsing table for following grammar based on LL(1) of top down approach. Also verify $id * id$ is valid or not. $E \rightarrow E + T   T$ $T \rightarrow T * F   F$ $F \rightarrow (E)   id$	10	L3	CO3	
	b.	With predictive parsing table prove that following is not LL(1) grammar. $S \rightarrow iEtSS'   a$ $S' \rightarrow eS   E$ $E \rightarrow b$	10	L3	CO3	

OR						
Q.6	a.	Explain the strategy of shift reduce parser and construct configurations of shift reduce parser on input $id_1 * id_2$ by applying suitable grammar, $E \rightarrow T, T \rightarrow T * F   F, F \rightarrow id.$	10	L3	CO3	
	b.	Write First and Follow for the following grammars : i) $S \rightarrow Aa Ab   Bb Ba$ $A \rightarrow \epsilon$ $B \rightarrow \epsilon$ ii) $S \rightarrow a Bh$ $B \rightarrow cC$ $C \rightarrow bC   \epsilon$ $E \rightarrow g   \epsilon$ $F \rightarrow f   \epsilon$	10	L3	CO3	
Module - 4						
Q.7	a.	Show that the following grammar in SLR (1) $S \rightarrow SA   A$ $A \rightarrow a$	10	L3	CO3	
	b.	What is inherited and synthesized attributes? Write SDD for simple desk calculator based on bottom up approach.	10	L2	CO4	
OR						
Q.8	a.	Construct set of LR (0) items and SLR parsing table for $E \rightarrow E + n   n$	10	L3	CO3	
	b.	Discuss S attributes and L attributes. Write annotated parse tree for $3 * 5$ using grammar suitable for top down parsing.	10	L2	CO4	
Module - 5						
Q.9	a.	What is a three address code? Explain the different ways of representing three address codes with examples.	10	L1	CO5	
	b.	Build Directed Acyclic Graph (DAG) and steps for constructing the DAG along with SDD for the given expression $a + a * (b - c) + (b - c) * d$	10	L2	CO5	
OR						
Q.10	a.	Explain the issues in the design of code generation.	10	L1	CO5	
	b.	Discuss a simple target machine model along with different kinds of instructions and addressing modes.	10	L2	CO5	

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