



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT: F1+TF1

Programme Name & Branch : M.Tech Integrated
Course Code and Course Name : CSI2005 - PRINCIPLES OF COMPILER DESIGN
Faculty Name(s) : VISWANATHAN A / GOPICHAND G / UMAMAHESWARI M /
NIVITHA K / MUTHUNAGAI S U
Class Number(s) : VL2024250502431 / 2433 / 2437 / 2440 / 2429
Date of Examination : 21-03-2025
Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy)

Q. No	Question	M	CO	BL
1.	Consider the grammar given below: $E \rightarrow E + T$ $E \rightarrow T$ $T \rightarrow T * F$ $T \rightarrow F$ $F \rightarrow (E)$ $F \rightarrow id$ Apply SLR Parsing on the above specified grammar and also check whether parsing the input string $id * id + id$. is accepted or not?	10	2	3
2.	Implement canonical LR parsing for the grammar given below by constructing the parsing table and justify whether the grammar is canonical LR (1) or not? $S \rightarrow E = E \mid a$ $E \rightarrow E + T \mid T$ $T \rightarrow T * a \mid a$	10	2	3
3.	a) Consider the grammar for simple integer arithmetic operations. $Exp \rightarrow Exp + term \mid Exp - term \mid term$ $term \rightarrow term factor \mid factor$ $factor (exp) \mid number$ Generate the Syntax Directed Definition for the grammar and also draw the annotated parse tree for $(34 - 3) * 42$.	5		
	b) Consider the grammar:	5	3	4



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	$D \rightarrow TL$ $T \rightarrow int \mid real$ $L \rightarrow L, id \mid id$ Construct SDD and Generate the annotated parse tree for this inherited attribute grammar by generating appropriate semantic rules			
4.	Suppose we have a production $A \rightarrow BCD$ Each of the four non-terminals has two attributes s , which is synthesized, and i , which is inherited. For each set of rules below, check whether the rules are consistent with (i) an S-attributed definition, (ii) an L-attributed definition (iii) any evaluation order at all. 1) $As = Bi + Ci$ 2) $As = B.i + C.s$ and $D.i = A.i + B.s$ 3) $As = B.s + D.s$ 4) $As = D.i$ $B.i = A.s + D.s$ $C.i = B.s$ $D.i = B.i + C.i$	10	3	4
5.	Generate the Three address code and enlist the quadruples, triples and indirect triples for the expression $-(a*b)+(c+d)-(a+b+c+d)$.	10	4	3
