

Code No: 23CS3601

PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY
(Autonomous)

MODEL QUESTION PAPER

COMPILER DESIGN

Duration: 3 Hours

Max. Marks: 70

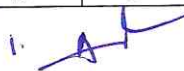
- Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit.
Each Question carries 10 marks.
4. All parts of Question paper must be answered in one place.


BL – Blooms Level

CO – Course Outcome

Part - A

Qes.No	Question	BL	CO
1. a)	Explain Lexemes, Patterns and Tokens	L2	CO1
1. b)	Explain Ambiguous Grammer with simple example	L2	CO1
1. c)	Find FIRST for the following grammar: $E \rightarrow T E'$ $E' \rightarrow + T E' \mid \epsilon$ $T \rightarrow F T'$ $T' \rightarrow * F T' \mid \epsilon$ $F \rightarrow (E) \mid id$	L2	CO1
1. d)	Describe handle reduction in bottom-up parsing, with a suitable example	L2	CO1
1. e)	Explain SDD	L2	CO1
1. f)	Describe Three-code code with suitable example	L2	CO1
1. g)	Explain sub-express elimination and dead-code elimination	L2	CO1
1. h)	Construct DAG for the expression $a = (b*c) + (b*c - d)$	L2	CO1
1. i)	Explain Activation record	L2	CO1
1. j)	Explain Register allocation and assignment	L2	CO1

1. 
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Part –B

5 x 12 = 60 Marks

Qes.No	Question	Blooms Level	CO	Max. Marks
UNIT-I				
2	(a) Explain the phases of a compiler with a neat block diagram.	L2	CO2	5
	(b) Explain about Left factoring and Left Recursion with an examples?	L3	CO2	5
OR				
3	(a) Why input buffering used in lexical analysis? What are the commonly used buffering methods?	L3	CO2	5
	(b) Show the following grammar is Ambiguous. $S \rightarrow iEtS / iEtSeS / a, E \rightarrow b$	L3	CO2	5
UNIT-II				
4	(a) Construct the recursive decent parser for the following grammar? $E \rightarrow E+T/T T \rightarrow T*F/F F \rightarrow (E)/id$	L3	CO2	5
	(b) Construct CLR Parsing table for the given grammar $S \rightarrow CC C \rightarrow aC/d$	L3	CO2	5
OR				
5	(a) Calculate FIRST and FOLLOW for the following grammar? $E \rightarrow E+T/T T \rightarrow T*F/F F \rightarrow (E)/id$	L3	CO2	5
	(b) Construct SLR Parsing table for the given grammar $E \rightarrow E+T \mid T T \rightarrow T*F \mid F F \rightarrow F* \mid a \mid b$	L3	CO2	5
UNIT-III				
6	(a) Explain the Translation scheme of Syntax Directed Definition (SDD)	L2	CO3	5
	(b) Generate three-address code for the expression: $a = b * c + d / e$	L3	CO3	5
OR				
7	(a) Explain synthesized and inherited attributes. Differentiate between them with examples.	L3	CO3	5
	(b) Translate the expression $-(a+b)*(c+d)+(a+b+c)$ into quadruple, triple and indirect triple	L3	CO3	5
UNIT-IV				
8	(a) Explain the machine dependent and independent code optimization techniques.	L2	CO4	5
	(b) What is meant by copy propagation? Explain in detail.	L2	CO4	5
OR				
9	(a) What is the purpose of code optimization? Explain in detail about loop optimization with an example	L2	CO4	5
	(b) What are basic blocks? What is the use of algebraic identities in optimization of basic blocks?	L3	CO4	5



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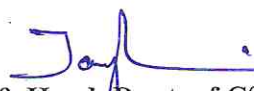
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UNIT-V					
10	(a)	What is an activation record? Explain how it is related with run time storage organization.	L2	CO5	5
	(b)	Describe in detail about register allocation and assignment generic code generation algorithms	L3	CO5	5
OR					
11	(a)	Explain the different storage allocation strategies.	L2	CO5	5
	(b)	Explain the generation of target code for expressions using registers.	L3	CO5	5

Course Coordinators

1. Mr P Anil Kumar 
2. Mr B Vishnu Vardhan - 


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