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Reg. No.													

Question Paper Code	11847

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Sixth Semester

Computer Science and Engineering

20CSPC602 – COMPILER DESIGN

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Describe the two parts of a compilation.	*2,K2,CO1*
2.	List out the cousins of compiler.	*2,K1,CO1*
3.	Show the advantage of having sentinels at the end of each buffer halves in buffer pairs.	*2,K1,CO2*
4.	List the various parts in LEX program.	*2,K1,CO2*
5.	Define handle pruning.	*2,K1,CO3*
6.	Define an ambiguous grammar.	*2,K1,CO3*
7.	Write the 3-addr code for the statements a =b*-c + b*- c.	*2,K1,CO4*
8.	What is static checking?	*2,K1,CO4*
9.	What is an Activation tree?	*2,K1,CO5*
10.	What are basic blocks?	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Describe the various phases of compiler and trace it with the program segment i = i*70+j+2.	*13,K2,CO1*
		OR	
	b)	(i) Explain language processing system with neat diagram. (ii) State the complier construction tools and explain them.	*7,K2,CO1* *6,K2,CO1*
12.	a)	(i) Construct the transition diagram for relational operators and unsigned numbers. (ii) Explain lexeme, token and pattern with a suitable example	*7,K2,CO2* *6,K2,CO2*
		OR	
	b)	For the given Regular Expression construct DFA using Direct method (a|b)*abb.	*13,K3,CO2*

13. a) Construct LL(1) parsing table for the following grammar *13,K3,CO3*
E-> E+T | T
T-> T*F | F
F-> (E) | id
Also check the validity of the string "id+id*id".

OR

b) Construct a SLR parsing table by examining the following grammar. *13,K3,CO3*
S->CC
C->cC | d and use the string "cdd" to parse with the SLR Parsing Table.

14. a) Describe the representation of 3-address code for *13,K2,CO4*
a = b * – c + b * – c.

OR

b) Explain how Backpatching be used to generate code for Boolean expressions and flow of control statements. *13,K2,CO4*

15. a) Discuss the various storage allocation strategies in detail. *13,K2,CO5*

OR

b) (i) Explain the various issues in the design of code generation in detail. *7,K2,CO5*
(ii) Explain the simple code generation algorithm in detail. *6,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Explain briefly about the principal sources of optimization. *15,K3,CO6*

OR

b) Explain global data flow analysis for the following *15, K2,CO6*