

C BYREGOWDA INSTITUTE OF TECHNOLOGY

Department: Computer Science and Engineering

Model Question paper I

System Software & Compiler Design (15CS63)

Duration: 03 hrs

Max Marks: 80

Note: Answer five full questions, choosing one full question from each module

Question number	Module-1	Marks
1	a) Explain the SIC machine architecture in detail.	8
	b) What are the Different types of assemblers and Explain the features used in assemblers	8
[OR]		
2	a) What is Program Relocation? Explain the problem associated with it and there solution	6
	b) Give the algorithm for pass1 of and 2 pass assembler	10
Module-2		
3	a) Explain machine dependent features of loader	8
	b) Explain the absolute loader and Write its algorithm.	8
[OR]		
4	a) With an algorithm, explain pass1 of a linking loader	8
	b) What is dynamic binding? explain the process of loading and calling a subroutine using dynamic binding	8
Module-3		
5	a) Explain with a neat diagram phases of a compiler by taking an example $A=B+C*50$.	10
	b) Construct a transition diagram for identifier and unsigned numbers	6
[OR]		
6	a) Discuss the various applications of compiler technology	10
	b) What is regular expression? Write the algebraic laws of regular expression	6
Module-4		
7	a) Define left recursion. Write an algorithm to eliminate left recursion. Eliminate left recursion from the following grammar $E \rightarrow E+E T$ $T \rightarrow T*F F$ $F \rightarrow (E) id$	6
	b) Consider the below grammar $S \rightarrow (L) a$ $L \rightarrow L, S S$ Make the grammar suitable for top down parsing. Construct predictive parsing table and parse the input string (())	10
[OR]		
8	a) Consider the following grammar $S \rightarrow L=R R$ $L \rightarrow *R id$ $R \rightarrow L$ i). Construct set of LR(1) items ii). Construct LR(1) canonical parsing table	10
	b) What is Handle pruning? Give Bottom up parses for the input string $aaa*a++$ using the grammar $S \rightarrow SS+ SS* a$	6
Module-5		

9	a) Write an SDD for simple desk calculator and show annotated parse tree for the expression $3*5+4n$	6
	b) Construct a dependency graph for the declaration float id1, id2, id3	5
	c) Define i) synthesized attribute ii) inherited attribute	5
	[OR]	
10	a) Obtain DAG for the expression $a+a*(b-c)+(b-c)*d$	6
	b) Discuss the various issues in the code generation phase	10