

Model Question Paper I

CBCS SCHEME

Six Semester B.E Degree Examination_____

Compiler Design (BCS613C)

TIME: 03 Hours

Max.Marks:100

1. Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**

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

	Module - 1		M	L	C
Q.1	a	What is a Compiler? Explain the working of a Compiler with your own example?	8	L1	CO1
	b	List and explain applications of Compiler design.	8	L2	CO1
	c	Write a note on productivity tools.	4	L2	CO1
	OR				
Q.2	a	Consider the context-free grammar. $S \rightarrow SS+ \mid SS^* \mid a$ i) Show how the string $aa+a^*$ can be generated by this grammar. ii) Construct a parse tree for this string	8	L2	CO1
	b	With a neat diagram explain Language processing system.	8	L1	CO1
	c	Write a short note on Interpreter.	4	L2	CO1
	Module - 2				
Q.3	a	Explain tokens, patterns, and lexemes. Demonstrate the same with examples.	8	L2	CO2
	b	Discuss different types of common programming errors.	6	L2	CO2
	c	Write and Apply an algorithm to eliminate left recursion from following grammar. $S \rightarrow Aa \mid b$ $A \rightarrow Ac \mid Sd \mid \epsilon$	6	L3	CO2
	OR				
Q.4	a	Write the transition diagram that recognizes the lexemes matching the token Relation Operator(relop) and identifiers.	8	L2	CO2
	b	Discuss different error recovery strategies.	6	L2	CO2
	c	Eliminate left recursion from the given grammar $E \rightarrow E+A \mid A$	6	L3	CO2

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		$A \rightarrow A B \mid B$ $B \rightarrow B \# \mid C$ $C \rightarrow a \mid b$			
	Module – 3				
Q.5	a	Is the grammar $G = \{ S \rightarrow L=R, S \rightarrow R, R \rightarrow L, L \rightarrow *R \mid id \}$ an LL(1) grammar?	8	L3	CO3
	b	Explain recursive descent parsing with example.	6	L2	CO3
	c	Explain shift reduce parsing technique with example.	6	L2	CO3
	OR				
Q.6	a	Show that the following grammar is LL(1). $S \rightarrow A$ $A \rightarrow a B \mid A d$ $B \rightarrow b B C \mid f$ $C \rightarrow g$	8	L3	CO3
	b	Write the procedure to compute first and follow of the given grammar.	6	L2	CO3
	c	Explain handle pruning with example.	6	L2	CO3
	Module - 4				
Q.7	a	Show that the following grammar is SLR(1). $E \rightarrow E + T \mid T$ $T \rightarrow T * F \mid F$ $F \rightarrow (E) \mid id$	10	L3	CO4
	b	What is dependency graph? Write dependency graph for the expression $3 * 5$ with suitable top down grammar.	10	L3	CO4
	OR				
Q.8	a	Construct LR(0) items and parsing table for the following grammar. $S \rightarrow CC$ $C \rightarrow c C$ $C \rightarrow d$	10	L3	CO4
	b	Write SDD for simple type declarations. Also write dependency graph for a declaration <code>int id1,id2,id3.</code>	10	L3	CO4
	Module - 5				
Q.9	a	Write a list of the common three address instruction forms with example.	10	L2	CO5
	b	Write a note on the following (i) Input to the code generator	10	L2	CO5

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		(ii) The target program			
		OR			
Q.10	a	Write SDD for flow of control statements.	10	L2	CO5
	b	Write a note on a simple target machine model.	10	L2	CO5