Code No: **RT42192** **R13** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

AUTOMATA THEORY AND COMPILER DESING

(Electronics and Computer Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1.	a)	Define DFA and NFA.	[4]
	b)	What is ambiguous grammar? Explain with example.	[4]
	c)	What is Context free Grammar?	[3]
	d)	Write about Left recursion with an example.	[4]
	e)	Define Symbol table.	[3]
	f)	What are the code improving transformations on basic blocks?	[4]

PART–B *(3x16 = 48 Marks)*

2.	a)	Write the regular expression for the following over {a,b} such that each string start and ends with the different symbol.	[8]
	b)	Construct a Finite Automata for the Regular expression (00+11)*00.	[8]
3.	a)	If G is the grammar S→ SbS/a, consider W=abababa and show that G is ambiguous?	[8]
	b)	Let G be the grammar S→0B/1A, A→0/0S/1AA, B→1/1S/0BB for the string 00110101 find LMD, RMD and derivation tree?	[8]
4.	a)	Differentiate between Bottom up and Top down parsing techniques.	[8]
	b)	Construct SLR Parsing table for the grammar E→E+T/T, T→T*F/F,F→(E)/id.	[8]
5.	a)	Translate the expression -(a+b) * (c+d) + (a+b+c) in to Quadruple, Triple and Indirect triple.	[8]
	b)	Discuss in brief about overloading of functions and operators.	[8]
6.	a)	What are self organizing lists? How can this be used to organize a symbol table? Explain with an example?	[8]
	b)	Explain in brief about static storage allocation strategy.	[8]
7.	a)	Explain in brief about the structure preserving transformation of basic blocks?	[8]
	b)	Define code generation? What are the issues in the design of a code generator?	[8]