Code No: RT22055 **R13** SET - 1

II B. Tech II Semester Supplementary Examinations, April/May-2019
FORMAL LANGUAGES AND AUTOMATA THEORY
(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1.	a)	Write a short note on automata in real world.	(3M)
	b)	Define formal language.	(3M)
	c)	Write a short note on the design of DFA's.	(4M)
	d)	What is regular Expression? What are uses of Regular Expressions?	(4M)
	e)	What is ambiguous grammar? Give example.	(4M)
	f)	Define undecidable problem.	(4M)

PART –B

2.	a)	What are the elements of finite state system? Explain.	(8M)
	b)	How FSM is mathematically represented? Discuss.	(8M)
3.	a)	Differentiate between CFL and CSL.	(8M)
	b)	Explain about recursive language.	(8M)
4.		Define NFA and DFA? What is the equivalence of NFA with DFA? Explain with your own example.	(16M)
5.	a)	Differentiate between DFA and 2DFA.	(4M)
	b)	Construct the NFA for the language which accepts all string's of 0's and 1's such that either the second or third position from the end has a 1. Obtain the regular expression from this constructed NFA.	(12M)
6.	a)	What are the applications of CFG? Explain.	(4M)
	b)	Find an equivalent grammar in CNF of the following grammar. S → bA / aB A → bAA / aS / a B → aBB / bS /b	(8M)
	c)	Explain about different types of grammar.	(4M)
7.		Design Turing machines for the language L= {WW^R / w is any string of 0's and 1's}.	(16M)
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