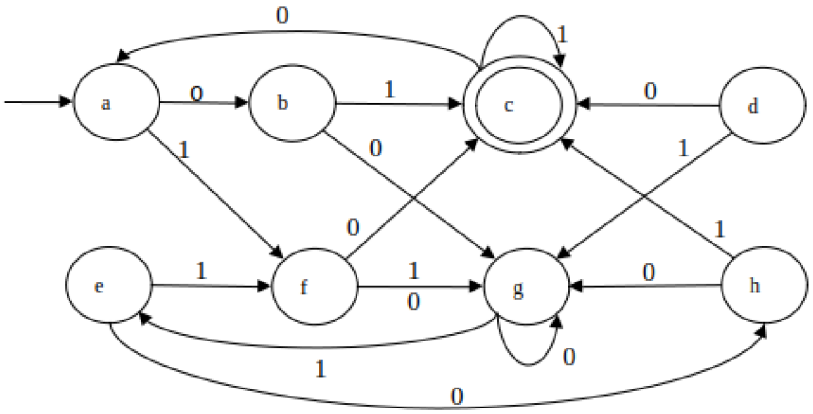
		Course Code: B20AM2203			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R20**
		II B.Tech. II Semester MODEL QUESTION PAPER			
		AUTOMATA THEORY AND COMPILER DESIGN			
		(For AIML)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer **ONE Question** from **EACH UNIT**			
		All questions carry equal marks			
		Assume suitable data if necessary			
			CO	**KL**	**M**
		UNIT-I			
1.	**a).**	Construct DFA for the following languages i) L={w/w begins with 1 and ends with 00, w in {0,1}*} ii) L={w/w contains Even number of zeros and Even number of ones, w in {0,1}*}	**1**	**3**	**7**
	b).	Construct NFA for accepting the strings {ab, ba} and then convert it to DFA.	**1**	**3**	**7**
		OR			
2.	**a).**	Define Regular expression and construct NFA with ϵ moves equivalent to the Regular Expression (ab + aab)*	**1**	**3**	**7**
	b).	Explain about minimization algorithms and apply minimization algorithm to reduce the number of states of following DFA  	**1**	**3**	**7**
		UNIT-II			
3.	**a).**	Apply pumping lemma to show the set of all even length palindrome strings is not regular.	**2**	**3**	**7**
	b).	Construct Context free grammar for L= { WCWR / W in (0+1)* }	**2**	**3**	**7**
		OR			
4.	**a).**	Sketch the relationship between different formal languages and corresponding finite automata.	**2**	**2**	**7**

	b).	Show that intersection of Regular language and context free languages is context free by taking an example.	**2**	**2**	**7**
		UNIT-III			
5.	**a).**	Demonstrate different phases of a compiler and generate the output of each phase position := initial + rate * 45.	**3**	**3**	**7**
	b).	Explain about Recognition of tokens.	**3**	**2**	**7**
		OR			
6.	**a).**	Demonstrate the working of Shift-Reduce parser for the string and then test whether the string id + id * id is accepted or not in the CFG E□E+E / E * E / id	**3**	**3**	**7**
	b).	Construct FIRST and FOLLOW sets for the following CFG S□ AB A□aA / b / € B□cB / d	**3**	**3**	**7**
		UNIT-IV			
7.	**a).**	Construct LR (0) sets of items and then SLR parsing table for the following CFG. S□AA A□aA / b And then test whether the string **abb** is accepted or not.	**4**	**3**	**14**
		OR			
8.	**a).**	Explain about evaluation of SDD at nodes of a parse tree by taking an example.	**4**	**2**	**7**
	b).	Translate the expression a = (b * -c)+(b * -c) into Quadruples, triples and indirect triples.	**4**	**2**	**7**
		UNIT-V			
9.	**a).**	Explain about optimization of basic blocks.	**5**	**2**	**7**
	b).	Define Symbol table? Explain about the data structures used for Symbol table.	**5**	**2**	**7**
		OR			
10.	**a).**	Generate target code from sequence of three address statements using simple code generator algorithm.	**5**	**3**	**7**
	b).	Discuss about peephole optimization techniques.	**5**	**2**	**7**

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE: Questions can be given as A,B splits or as a single Question for 14 marks